2025

Carbon Compass®

JPMorganChase

Contents

Introduction		3
1 Portfolio-level carbon intensity targets	Methodology overview	7
	Sector-specific methodologies	13
2 Absolute financed and facilitated emissions	Financing	52
	Company value	52
	Client emissions	53
	Data waterfall approach	54
	Data quality scoring	55
3 Energy Supply Financing Ratio	Overview of our approach	58
	Methodology detail	60
	ESFR application to our Green objective	66
	The case for a technology-enabling ESFR	66
Appendix	Comparison of boundaries used for ESFR, portfolio-level carbon intensity targets and Green objective eligibility criteria	68
	Abbreviations	69

Introduction

At JPMorgan Chase & Co. ("JPMorganChase", the "Firm" or "we"), we aim for our financing to support economic growth, reliable and affordable energy, and a transition to an energy-secure low-carbon economy. Our approach to climate and energy opportunities is rooted in commercial considerations, including serving our customers, clients and communities while running a healthy and vibrant company.

As part of our approach, we have established a series of climate-related metrics and targets. These metrics and targets help inform our engagement with clients around their low-carbon objectives and provide insights to our stakeholders. They are designed to help us track and understand different aspects of a transition to a low-carbon economy, including our financed emissions and capital allocation across energy supply. Together, these metrics provide insight into how we support clients across sectors, with each metric reflecting its own methodology, assumptions and limitations. Carbon Compass®[1] sets out the methodologies and frameworks for how we define, measure and track our carbon intensity targets, absolute financed and facilitated emissions metrics and Energy Supply Financing Ratio (ESFR).

Since 2021, we have expanded Carbon Compass® with the goal of reflecting evolving market practices for the financial sector on climate-related topics and remaining responsive to our stakeholders. To date, we have set nine portfolio-level carbon intensity targets ("carbon intensity targets", "targets") for eight sectors — Oil & Gas, Electric Power, Auto Manufacturing, Aviation, Shipping, Iron & Steel, Cement and Aluminum — aligned with the International Energy Agency's Net Zero by 2050 (IEA NZE) scenario. In 2023 we began measuring and reporting our absolute financed emissions for the sectors we cover with our targets. In 2024 we designed and disclosed our ESFR approach comparing our financing supporting low- and zero-carbon energy supply activities versus that supporting high-carbon and unabated fossil-based energy supply activity.

In this edition, we updated our targets to reflect evolving market conditions, including the pace of transition among our clients, and to align with the latest sector pathways of the IEA NZE scenario. The latest IEA NZE scenario presents 2035 as the nearest interim reference year; accordingly, we are extending our target horizon from 2030 to 2035, with the exception of the Aluminum target, which remains on a 2030 horizon pending future updates to the underlying climate scenario. In addition, we have improved methodological consistency in how targets are constructed.

[1] Carbon Compass® does not cover our $2.5 trillion Sustainable Development Target (SDT). For details on our SDT methodology, refer to Our approach to our Sustainable Development Target.

The timeline below summarizes the evolution of Carbon Compass®.

OCTOBER 2020

- Announced plan to set portfolio-level carbon intensity reduction targets for select sectors in our financing portfolio

MAY 2021

- Became the first large U.S. bank to set 2030 portfolio-level carbon intensity targets, which we set for the **Oil & Gas** (Operational and End Use), **Electric Power** and **Auto Manufacturing** sectors aligned to the International Energy Agency's Sustainable Development scenario

DECEMBER 2022

- Set carbon intensity targets for **Iron & Steel**, **Cement** and **Aviation**, aligned with the IEA NZE scenario

NOVEMBER 2023

- Set carbon intensity targets for **Shipping** and **Aluminum**, aligned with the IEA NZE scenario
- Updated our **Oil & Gas End Use** target — now called **Energy Mix** — to encompass a broader view of energy supply that seeks to better capture the system-wide substitution from oil and natural gas to low-carbon fuels and zero-carbon electricity generation under the IEA NZE scenario
- Updated **Oil & Gas Operational**, **Electric Power** and **Auto Manufacturing** targets to align with the IEA NZE scenario
- Outlined our approach to measuring and reporting **absolute financed and facilitated emissions** for the sectors for which we have set carbon intensity targets

NOVEMBER 2024

- Developed our own methodology to calculate our **Energy Supply Financing Ratio** (ESFR)

OCTOBER 2026

- Updated our carbon intensity targets for **Energy Mix**, **Oil & Gas Operational**, **Electric Power**, **Auto Manufacturing**, **Aviation**, **Shipping**, **Cement** and **Iron & Steel**, to align with the 2025 World Energy Outlook version of the IEA NZE scenario
- Update included extending the target year from 2030 to 2035, in line with the latest IEA NZE scenario and its new 2035 interim reference year

The chapters that follow provide a summary of the methodologies for our climate-related metrics and targets as of October 2026. Chapter One provides a detailed overview of our approach to setting portfolio-level carbon intensity targets, including specifics on the in-scope activities, metrics and data sources used for each target. Chapter Two outlines our approach to calculating absolute financed and facilitated emissions for the sectors for which we have set carbon intensity targets. Chapter Three provides details of the methodology used to calculate our ESFR.

This document supersedes prior methodology publications, including earlier versions of Carbon Compass® published prior to October 2026.

For additional information on the Firm's approach to environmental sustainability, our progress toward our targets and how we are supporting our clients, see our most recent firmwide Sustainability Report, available in the 'Resources, reports and disclosures' section on this website.

1 Portfolio-level carbon intensity targets

Methodology overview

Our portfolio-level carbon intensity targets are designed to help us track changes in the carbon intensity of our portfolios over time, and to better support our clients.

While our targets can be useful in understanding our financed and facilitated emissions, they present only part of the broader picture. We believe our contribution is best reflected in how our financing, capital allocation and advisory capabilities support tangible outcomes in the real economy, including projects and infrastructure that help build resilient energy systems and enable lower-carbon solutions.

The methodology for our carbon intensity targets incorporates and builds on related approaches, both within and beyond our industry, to define sector-relevant metrics and targets. These targets are informed by data-driven, sector-specific decarbonization pathways. In this chapter, we provide details on our overall approach, our choice of metrics and how we have tailored our methodology for individual targets. It also includes a summary of our current targets and information on how carbon credits factor into our metrics.

In establishing our own methodology for our carbon intensity targets, we enlisted the support of ERM, a global sustainability consultancy with deep sectoral, technical and business expertise in the low-carbon transition of different sectors. We believe the approach we developed is practical and reflects our clients' current thinking on energy and climate strategies, as well as available sectoral pathways.

Our targets span sectors that differ both in their contribution to global GHG emissions and in the relative scale of our client activity. In the sectors that account for a greater share of global emissions, such as Electric Power and Oil & Gas, our financing footprint is larger and the decarbonization levers available to our clients are better established. In sectors such as Shipping, Cement and Aluminum, which represent a smaller proportion of global emissions, our portfolio metrics are more sensitive to a narrower client set, resulting in more variability in our progress year over year.

We continue to use the IEA NZE scenario because it is a useful reference point, it is a widely used external benchmark, and it is updated over time to reflect developments in energy, technology and emissions. The IEA NZE scenario is not a forecast. It defines an outcome — net-zero global energy-related CO_2 emissions by 2050 — and describes one pathway to achieve it. However, achieving that outcome is not assured, and has become increasingly challenging as global emissions have remained high and certain emissions-reduction measures have been slow to scale. These same global headwinds are likely to present similar challenges to meeting our targets.

In 2025, the International Energy Agency updated its Net Zero Emissions by 2050 scenario to incorporate more recent data and developments in energy, technology and emissions. Relative to the 2023 IEA NZE scenario previously used to inform our targets, the 2025 IEA NZE scenario outlines a slower near-term decarbonization pathway, with higher near-term emissions, slower efficiency gains, slower electrification in some end uses, and slower deployment of hydrogen and carbon capture, use and storage (CCUS).

We set targets using our own independent assessment of what we determine is reasonable and will serve the best interest of our business and our clients. Our targets indicate our intent to capture sustainability-related opportunities, not to restrict our financing. We have consistently noted that our targets are subject to other prerequisites and critical considerations, both within and outside our control, that may affect our ability to meet them. These include the necessity of technological advancements; the evolution of consumer behavior and demand; the business decisions of our clients, who are responsive to their own stakeholders; the need for thoughtful public policies; the potential impact of legal and regulatory obligations; market conditions; climate science; commercial considerations; and the challenge of balancing short-term targets with the need to facilitate an orderly transition and energy security and affordability. We expect that any progress toward our targets will reflect these external variables and market forces. Therefore, our targets should not be interpreted as environmental claims or guarantees related to future environmental performance.

We have also noted that we may make adjustments to our targets as we deem appropriate to align them with our independent management of businesses, which continue to grow, evolve and change.

Key elements of our approach

The following key choices and considerations have informed our approach:

Data-driven	Our targets build on the transition pathways outlined by the International Energy Agency's Net Zero by 2050 (IEA NZE) scenario. We also reference a wide range of public resources, including additional climate scenarios, decarbonization research and other frameworks.
Sector-specific	Within each sector, we focus on activities with material emissions and credible pathways toward decarbonization, enabling us to gain more useful insight and better support our clients in developing and implementing their transition strategies, where applicable.
Comparable	For each sector, we define one or more core metrics that provide insight into companies' emissions, and that are compatible with the benchmark trajectories we use for sectoral decarbonization pathways.
Robust and consistent data	Each metric is designed to make use of consistent, well-reported and standardized data. Where data availability is limited, we plan to continue to support improvements while defining processes for use of appropriate alternatives.

Portfolio definition

Each of our sector portfolios is evaluated using a portfolio-weighted average of our clients' emissions in a given period. Weights are determined based on our cumulative financing to each client as a share of our total financing to the sector.

$$\text{JPMC Sector Portfolio Emissions Metric} = \sum \left(\text{Client Weight in JPMC Sector Portfolio (\%)} \times \text{Client Emissions Metric} \right)$$

For purposes of this calculation, our financing portfolio is defined to include all lending, tax-oriented investments and capital markets activity. We believe that including all these types of financing activities gives us a better understanding of how the carbon intensity of our portfolio changes over time, and helps us identify opportunities to best support our clients' low-carbon transition objectives, subject to commercial considerations.

For lending, we use the 12-month monthly average balance of committed financing to each client. We use committed financing because we believe it better reflects the scope of our relationship with a given client (i.e., based on the total amount that we have agreed to finance) as opposed to outstanding balance, which may obscure differences between smaller and larger clients based on the degree to which they have drawn on available credit from us.

For tax-oriented investments, we use the 12-month monthly average of outstanding balance and recapture activity, and the three-year rolling average for syndications.

For both lending and tax-oriented investments, we use the 12-month monthly average balance rather than a year-end balance in order to better capture the impact of short-term obligations, such as bridge loans, which frequently have terms of less than one year.

For capital markets activity, we use 100% attribution of our share of the transaction size on a three-year rolling average basis. The choice of a three-year versus one-year rolling average helps minimize the significant volatility often observed with capital markets transaction volumes, driven in part by companies typically only going to the market for additional financing every few years.

Intensity-based metrics

Our independent targets for 2035 are defined on the basis of carbon intensity, which measures emissions relative to a sector-specific unit of activity or output (e.g., kilograms CO_2 per megawatt-hour of electricity generation), rather than absolute emissions.

This is because we believe intensity-based metrics are well suited to evaluate emissions outcomes at the sector and company level, including by capturing variations in strategic and operational characteristics of different clients. Intensity-based metrics can provide a clearer view of changes in emissions relative to production, which is crucial for reducing emissions while still meeting the world's growing energy, economic and development needs. Further, intensity-based metrics also allow for more consistent tracking and comparison, and thus better inform how we engage with clients and support their emissions reduction goals.

More specifically, intensity-based metrics are informative, comparable and impact-oriented because they help us to:

- Set targets that are informed by internationally recognized, publicly available scenarios, without necessarily curbing activity growth;
- Analyze emissions trends in a manner that is less affected than absolute emissions by factors that cause year-to-year emissions volatility, such as changes in companies' production and/or valuation;
- More easily compare emissions outcomes across a portfolio of companies within a sector and between companies of different sizes;
- Meaningfully engage with new and existing clients and provide the capital and advice to support their emissions reduction objectives, subject to commercial considerations, while enabling us to track changes in the carbon intensity of our portfolios;
- Evaluate both individual companies' and sectors portfolio's emissions against decarbonization trajectories that align with net-zero emissions outcomes; and,
- Provide insight into the progress that clients are making in transitioning to lower-carbon production and products, where feasible.

Although we have chosen intensity-based metrics for the reasons highlighted above, in 2024, we also began measuring and reporting our financed and facilitated emissions on an absolute basis (i.e., absolute financed emissions) for the sectors included in Carbon Compass®. For details on our approach, see Chapter Two.

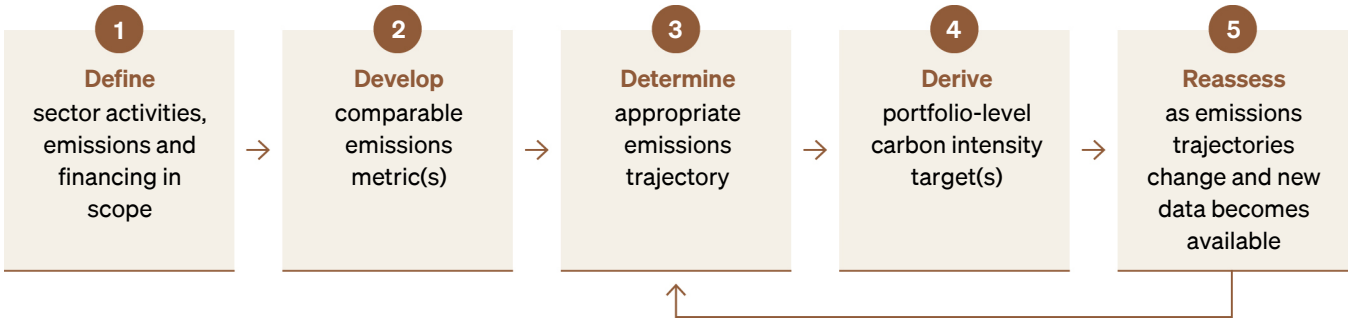
Sector selection

We have set carbon intensity targets for eight sectors: Oil & Gas, Electric Power, Auto Manufacturing, Aviation, Shipping, Iron & Steel, Cement and Aluminum. We have selected sectors based on several factors, including their relative contribution to global emissions, the availability of viable decarbonization pathways and technologies, and the availability of data, among others.

Tailoring our methodology for each target

Carbon Compass® incorporates what we believe are relevant and fit-for-purpose data and metrics to help track carbon intensity within our portfolios. As noted above, one of the essential features of our approach is the use of a tailored methodology for each included sector. The figure below summarizes the process we use and outlines the general framework for the sector-specific methodologies described in the 'Sector-specific methodologies' section.

How we design our methodology for each sector



Define sector activities, emissions and financing in scope. Our approach to each sector begins with consideration of key business activities and emissions sources, available transition pathways, industry trends, regulatory context, key dependencies and our portfolio. This approach results in an initial definition of the activities and emissions we want to track, which are key inputs for developing metrics and determining how to align them to relevant emissions trajectories.

Develop comparable emissions metric(s). Next, we develop one or more metrics for measuring and tracking the emissions of our clients and our portfolio as a whole. This involves assessing available tools and approaches, including commonly used metrics and available data sources. While our goal is to use standardized data and metrics where possible, in some cases we have chosen to combine multiple approaches or datasets in order to create a metric that is relevant to the sector and supports comparability across clients.

Determine appropriate emissions trajectory. After metrics are chosen, we identify a reference decarbonization scenario against which to benchmark each sector. Scenario selection may take into account several factors such as decarbonization ambition, the portfolio's composition and geographic exposure, whether the scenario provides sector-specific projections that can be applied directly or reasonably extrapolated, and activities included within the boundaries of each sector. Where scenario data does not map directly to the chosen metric and sector boundaries, methodological assumptions or adjustments may be required. In select hard-to-abate sectors, scenarios such as the IEA NZE scenario assume that the use of fossil fuels does not fall to zero in 2050 and therefore also rely on negative emissions technologies to achieve net-zero emissions by 2050.

Derive portfolio target(s). Using the chosen benchmark emissions trajectory for each sector, we then derive portfolio-level convergence or rate-of-change targets. Depending on the granularity of available scenario projections, the target may be expressed as a specific carbon intensity value or a percentage reduction from a specified baseline.

Reassess as scenarios are updated and/or new data becomes available. The scenarios in IEA's World Energy Outlook have been updated on a regular basis to date to reflect both relevant changes in the energy picture (e.g., available technologies, anticipated costs, new public policies) and current global energy and emissions trends. This may lead to changes in the trajectories required to maintain alignment with sectoral emissions goals, which could create the need to revise our targets. Also, changes in industry dynamics and new or better data becoming available for some sectors may create opportunities to incorporate additional emissions or otherwise improve our metrics. Therefore, a key step for each sector methodology is to periodically reassess key inputs and assumptions and recalibrate our targets as needed.

Current targets

The table below summarizes the portfolio-weighted baselines and current 2035 carbon intensity targets we have defined for each sector[2]. The table also provides additional context on each sector's contribution to global GHG emissions. For more information on each target, including activity and emission boundaries, the scenario and methods used, and other details, see the descriptions of individual sector methodologies.

	DETAILS		BASELINE[3]		2035 TARGET	SECTOR CONTEXT
SECTOR	Scope(s) included	Metric (unit of measurement)	Baseline year	Portfolio baseline		Estimated share of global GHG emissions[4]
Energy Mix	3 (end use)	g CO_2 / MJ	2019	45.9	**22.5** -51% from baseline	40%
Oil & Gas Operational	1 and 2	g CO_2e / MJ	2019	4.9	**-47%** from baseline	10%
Electric Power	1	kg CO_2 / MWh	2019	342.6	**72.4** -79% from baseline	34%
Auto Manufacturing	1, 2 and 3 (tank-to-wheel)	g CO_2e / km	2019	164.8	**57.7** -65% from baseline	13%
Aviation	1 (tank-to-wake)	g CO_2 / RTK	2021	972.6	**606.5** -38% from baseline	2%
Shipping	1 (tank-to-wake)	g CO_2 / t-nm	2021	11.9[5]	**4.8** -60% from baseline	2%
Iron & Steel	1 and 2	t CO_2e / t crude steel	2020	1.412	**0.842** -40% from baseline	6%
Cement	1 and 2	kg CO_2e / t cementitious product	2020	639.3	**399.2** -38% from baseline	3%
Aluminum	1 and 2	t CO_2e / t aluminum	2021	8.3[6]	**2030 TARGET 6.5** -22% by 2030 from baseline	2%

2 The Aluminum target remains set for 2030, as it is based on the pathway under the IAI 1.5DS, which has not yet been updated to include a 2035 reference year; we plan to revisit the Aluminum target as we deem appropriate when the IAI publishes an updated scenario.

3 To calculate portfolio baseline carbon intensities, we use client carbon intensity data for the baseline year and exposure data from the following year, except for the Aviation sector, where the baseline year and exposure year are the same (2021).

4 These figures are intended to provide a directional view of global GHG contributions by sector. They are estimates derived from multiple sources and may reflect differences in methodologies, sector boundaries and reference years. The figures do not add up to 100%, as sector boundaries may overlap, specifically across the interconnected parts of the energy system, and the sectors shown do not represent all sources of global GHG emissions. The estimated share of global GHG emissions by sector is based on data from the following sources: for Energy Mix, global GHG emissions data was sourced from the World Resources Institute (WRI)'s Climate Watch platform (accessed September 2026) and sector emissions data from the IEA's World Energy Outlook 2025 (Table A.4c: World CO_2 emissions); for Oil & Gas Operational, global GHG emissions data was sourced from the WRI's Climate Watch platform (accessed September 2026) and sector emissions data from the IEA's Emissions from Oil and Gas Operations in Net Zero Transitions, a World Energy Outlook 2023 special report; for Electric Power, Auto Manufacturing, Aviation, Shipping, Iron & Steel and Cement, data was sourced from the WRI's Climate Watch platform (accessed September 2026); and for Aluminum, data was sourced from the International Aluminium Institute's "Why the Aluminium Industry Must Be at COP28," accessed September 2026.

5 Revised 2021 portfolio baseline for Shipping to 11.9 g CO_2 / t-nm from previously disclosed 10.9 g CO_2 / t-nm.

6 Revised 2021 portfolio baseline for Aluminum to 8.3 t CO_2e / t aluminum from previously disclosed 8.6 t CO_2e / t aluminum.

Carbon credits

We recognize the importance of reducing emissions while supporting the development and deployment of carbon removal solutions. To this effect, under our methodology, individual client emissions may be offset by client-implemented carbon removal projects provided they are properly attributed according to standard GHG accounting protocols.

Reductions associated with clients' retirement of credits from third-party carbon removal projects — including direct air capture and storage and nature-based solutions — that have been validated and registered on an eligible platform will also be considered. Renewable energy credits (RECs) are permitted for use in offsetting emissions but may only be counted against Scope 2 emissions from purchased electricity, wherever applicable.

We plan to continue to monitor developments and consider the feasibility of recognizing additional types of credits in the future.

Sector-specific methodologies

Energy carbon intensity targets

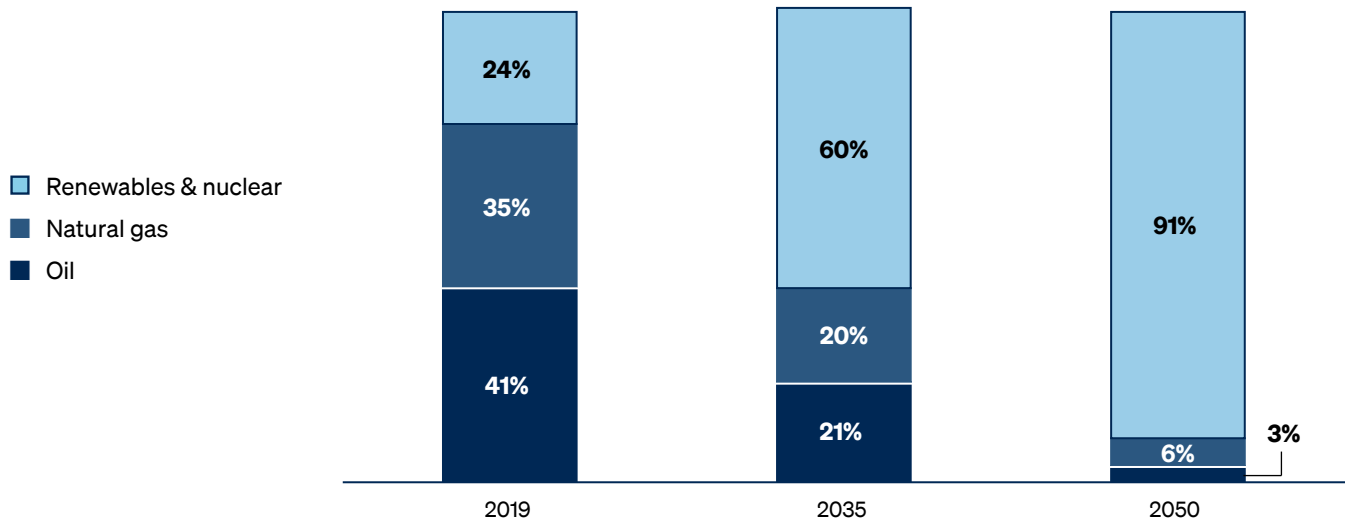
JPMorganChase's energy-related carbon intensity targets include our Oil & Gas Operational and Electric Power portfolios, alongside our Energy Mix target, which provides a broader view of the decarbonization of energy supply.

The IEA's latest NZE scenario provides an updated view of energy transition dynamics through 2035, reflecting the balance between advancing the low-carbon transition and managing energy security and affordability priorities. This results in a more gradual shift away from fossil fuels as electrification scales over time, with gas-fired generation remaining in the mix to support reliability. Methane abatement continues to be highlighted as a core decarbonization lever for Oil & Gas. Progress against the NZE scenario depends on sustained growth in zero- and low-carbon energy supply, which would require critical support via investments, infrastructure buildout and enabling policy conditions to help shift the energy mix over time. In the Electric Power sector, the scenario indicates substantial buildout of low- and zero-carbon generation alongside expanded transmission and distribution investment. Storage and other sources of system flexibility would need to scale in parallel to support reliability and affordability, as electricity demand and electrification grow across end-use sectors.

Energy Mix

The Energy Mix target focuses on the decarbonization of energy supply — specifically, the transition from fossil fuels, including oil and natural gas, to low- or zero-carbon alternatives, such as wind, solar, hydrogen and nuclear. The approach to our target recognizes that energy remains vital to the functioning of society and the economy, and that most of the energy currently supplied by fossil fuels would eventually have to be abated or replaced by energy from low- or zero-carbon alternatives under a net-zero trajectory.

Global energy supply by source in the IEA NZE scenario (excluding coal)



Source: IEA World Energy Outlook

Note: 2019 data is sourced from World Energy Outlook 2021, published in October 2021. 2035 and 2050 projections represent the IEA NZE scenario and are sourced from World Energy Outlook 2025, published in November 2025. Excludes Coal and non-energy-use Oil.

The substitution of oil and natural gas with low-carbon alternatives continues to take shape globally as most demand-side sectors seek to increase electrification and/or shift to bio- and synthetic-based alternatives. While the Oil & Gas sector leads in biofuels and CCS/CCUS investments, the buildout of zero-carbon power — solar, wind, hydro, bioenergy, nuclear and other renewables — is taking place primarily in the Electric Power sector. Our focus is on supporting our clients across sectors to help promote global energy security, availability and affordability, as well as helping facilitate the shift of electric grids from fossil fuels to renewables and the substitution of oil and natural gas with low- or zero-carbon alternatives, including zero-carbon power. Our Energy Mix target reflects our focus on supporting the financing of companies involved in the production of zero- and low-carbon power. Our target also reflects the interconnection across the broader energy system and is related to our targets for individual sectors on both the supply and demand sides of the energy equation, including those for Electric Power, Auto Manufacturing, Aviation and more.

Key decisions

Our Energy Mix target focuses on the carbon intensity of energy supplied for end-use consumption. As such, it encompasses Scope 3 CO_2 emissions associated with the combustion of oil and natural gas, as well as the comparative lack of emissions associated with solar, wind, hydro, bioenergy, nuclear, hydrogen and other renewables. As a result of the selected in-scope activities, there is a partial overlap between our Electric Power and Energy Mix targets. The two targets provide complementary but different views on the decarbonization of the energy system: the Electric Power target focuses on the carbon intensity of electricity generated by clients in that portfolio, while the Energy Mix target focuses on the carbon intensity of the broader mix of energy supplied for end-use consumption. Accordingly, a pro-rated share of exposure from our Electric Power portfolio, based on the zero-carbon proportion of clients' total generation activity, is combined with our Oil & Gas portfolio. We believe this approach is consistent with the IEA NZE scenario's treatment of global power generation. By tracking both fossil fuels and zero- or low-carbon energy sources, we gain a clearer view of how our financing relates to the emissions of the global energy system.

We obtained a net-zero-aligned carbon intensity pathway for the combined energy system using the IEA NZE scenario, adjusted to exclude coal and non-energy uses of oil. From this we derived a 2035 target of 22.5 g CO_2 / MJ, representing a 51% reduction from our 2019 portfolio baseline of 45.9 g CO_2 / MJ.

Portfolio target summary – Energy Mix

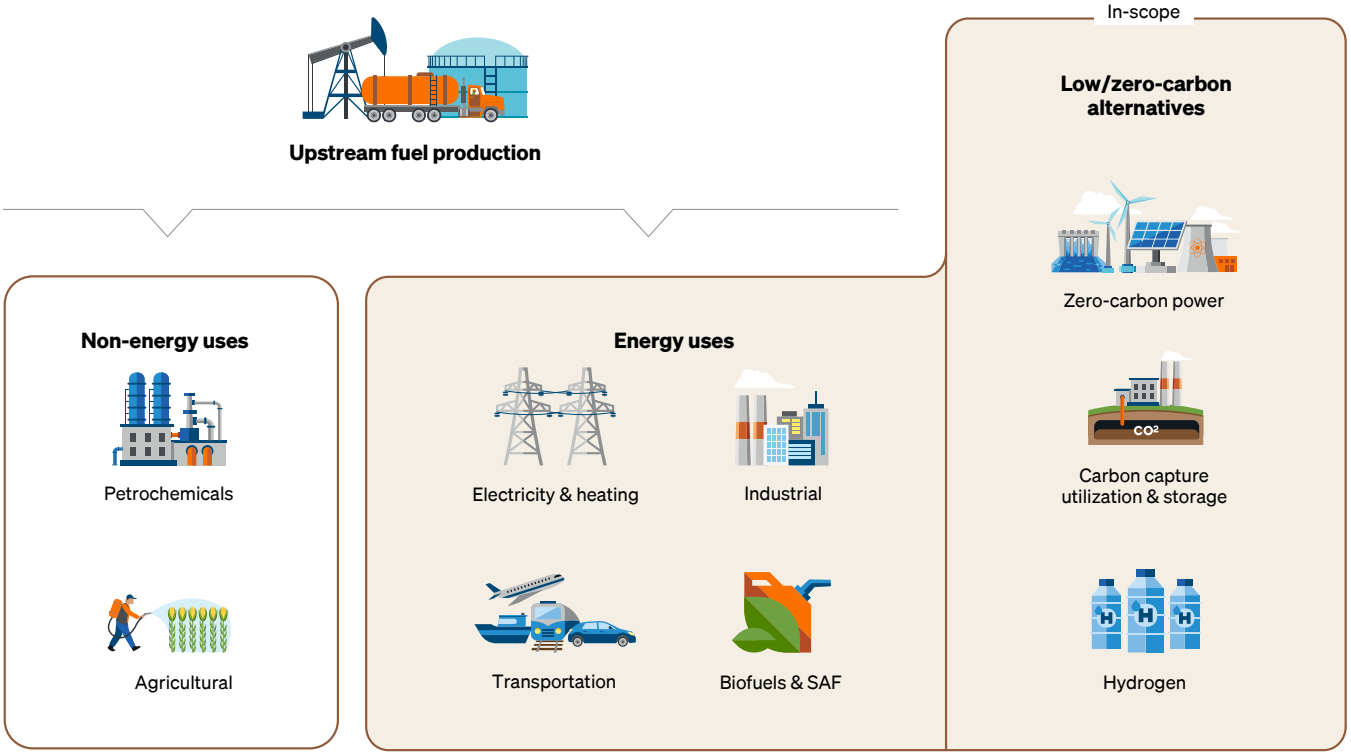
Activity focus	Supply of oil, natural gas and low-carbon fuels for end-use combustion, and zero-carbon power generation by Oil & Gas and Electric Power companies
Scope	Scope 3 CO_2 emissions from end use of energy products
Metric	g CO_2 / MJ
Scenario	IEA NZE with adjustments to exclude coal and non-energy uses of oil
2035 target	22.5 g CO_2 / MJ
Data sources	Wood Mackenzie, Enverus, S&P Global Trucost, S&P Global SNL Financial, company disclosures

Methodology detail

Boundaries

Our methodology for Energy Mix includes Scope 3 CO_2 emissions associated with energy products. Depending on a company's operations, energy products may include natural gas, unrefined liquids products (e.g., crude oil), refined liquids (e.g., gasoline, diesel), low-carbon fuels (e.g., biofuels), and/or zero-carbon power generation. The methodology assumes no end-use emissions from bioenergy, as any such emissions are generally offset by carbon storage benefits gained during the growing of feedstock. We also currently assume zero end-use emissions for hydrogen and zero-carbon electricity. Scope 3 supply chain emissions are not included as the target focuses on end-use emissions.

Energy Mix value chain



Establishing an activity boundary that includes both fossil fuels and low- and zero-carbon alternatives allows us to capture the decarbonization of global energy supply — specifically, the transition from oil and natural gas to low- or zero-carbon alternatives. Our approach to our target recognizes that in order to meet net-zero emissions goals, the world would need to transition to low- or zero-emissions energy sources, while considering the essential role of energy security, reliability and affordability in sustaining society and the economy. It also underscores our intention to continue to support the development and scale of alternative energy sources, while also engaging with interested Oil & Gas clients on their transition strategies and goals.

CCS/CCUS is an area of focus for select Oil & Gas companies. This is primarily because various points along the oil and gas supply chain result in highly concentrated sources of CO_2 emissions suitable for CCUS. Additionally, once the CO_2 is captured and compressed, geological storage resources are often found close to existing oil and gas activities, and sometimes within their operational footprint. There are several applications of captured carbon, such as in the production of hydrogen, fertilizers and building products, that could make investing in CCS/CCUS an economically attractive proposition for the Oil & Gas sector — in particular when using depleted wells to store carbon — while also driving down their Scope 3 emissions.

Given the role CCS/CCUS will play in helping the Oil & Gas and other sectors to achieve net-zero emissions by 2050, our methodology aims to account for it in individual client emissions, provided the associated emissions impacts are properly attributed according to standard GHG accounting protocols. Although data disclosure is currently limited due to the relatively small scale of operations, we plan to continue to monitor developments and consider enhancing our methodology to better account for CCS/CCUS activity in the future.

Metric

Our Energy Mix target is evaluated using the metric grams CO_2 per megajoule of energy, which includes energy embedded in oil, natural gas, refined products and low-carbon fuels, and generated energy from zero-carbon power sources. To compute our portfolio-level Energy Mix metric, we apply separate calculations for in-scope Oil & Gas and Electric Power companies.

For Oil & Gas companies, engaged in upstream and refining activities, carbon intensity is calculated as the emissions resulting from combustion of natural gas, oil and refined products, net of CCS/CCUS activity, divided by the energy embedded in these products, any low-carbon fuels produced (e.g., biofuels, hydrogen) and the energy generated from renewable electricity sources by Oil & Gas companies.

Oil & Gas End Use carbon intensity

$$\frac{\text{Scope 3 Emissions from Oil and Natural Gas Combustion - CCS/CCUS (g } CO_2)}{\text{Embedded Energy in Oil, Natural Gas, Refined Products and Low-Carbon Fuels and Energy from Zero-Carbon Power Generation (MJ)}}$$

For Electric Power companies (public and investor-owned utility companies, independent power producers and electric cooperatives, as well as diversified companies with power generation activities) engaged in zero-carbon power generation, carbon intensity is calculated as the emissions resulting specifically from the generation of zero-carbon power divided by the energy generated from these sources.

Zero-Carbon Power Generation carbon intensity

$$\frac{\text{Zero-Carbon Power Generation Emissions (g } CO_2)}{\text{Energy from Zero-Carbon Power Generation (MJ)}}$$

The portfolio weight applied to each client is determined based on the amount of in-scope exposure being considered for this target. For Oil & Gas clients we include all in-scope financing provided. For Electric Power clients we isolate exposure to zero-carbon power generation activities by taking a pro-rated share of in-scope financing based on the zero-carbon proportion of the client's total generation activity.

Changes in the resulting portfolio-weighted average Energy Mix carbon intensity are therefore dependent on three factors: (i) the Scope 3 combustion emissions intensity of Oil & Gas clients; (ii) the share of financing provided to Oil & Gas companies; and (iii) the share of financing provided to Electric Power companies (utilities and independent power producers) engaged in zero-carbon power generation.

We believe this metric captures the shift in fuel mix of the global energy complex consistent with moving from fossil fuels to low- and zero-carbon sources of energy to achieve net-zero emissions in line with the IEA NZE scenario. It supports continued engagement with Oil & Gas companies on their Scope 3 decarbonization plans while also supporting our efforts to accelerate financing of zero-carbon power generation.

Scenario and target

The benchmark trajectory for our Energy Mix target is based on IEA's projections of CO_2 emissions and energy supply under the NZE scenario. We aggregate energy supply pathways for oil, natural gas, solar, wind, hydro, bioenergy, nuclear and other renewables to construct an aggregate energy supply pathway capturing the substitution of fossil fuels with low- and zero-carbon energy. Coal and non-energy use of oil are excluded from the aggregation of energy supply.

Using the resulting trajectory, we have calculated a carbon intensity target for 2035 of 22.5 g CO_2 / MJ, representing a 51% reduction from our 2019 baseline of 45.9 g CO_2 / MJ.

Data sources and considerations

To calculate the carbon intensity of companies covered by our Energy Mix target, we use a combination of data sources that we believe best capture production activity of the various fuels and power generation sources included in our metric.

For upstream oil and natural gas and refining activity, we rely on data collected and maintained by Wood Mackenzie and Enverus. Production and refining data from both data providers use the net working interest method of aggregating asset-level (field- or refinery-level) data up to the parent company. For companies not adequately covered by these sources, we use proxy values equivalent to the 75th percentile of the available data for other portfolio companies, based on the type of operations.

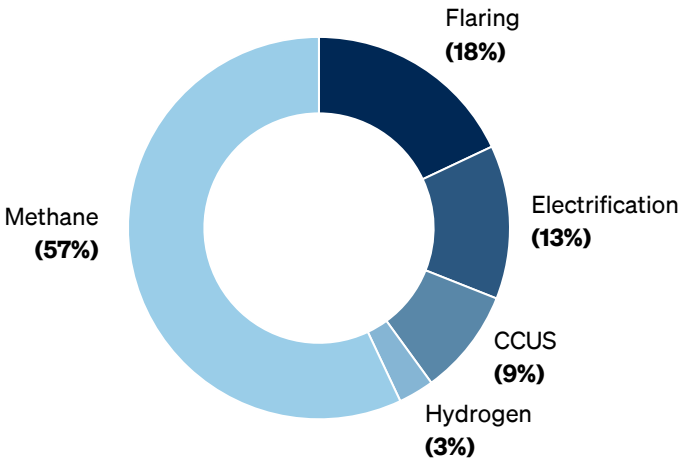
For zero-carbon power generation activity, we source data from S&P Global Trucost. If generation data is unavailable, we use installed capacity from S&P Global's SNL tool and apply average utilization rates derived from the IEA World Energy Outlook data, based on fuel type and region.

Moving forward, we plan to continue to monitor developments in the availability of data — especially those relevant to the evolving composition of our portfolio and the further development of sector decarbonization strategies — and consider updates to our methodology as we deem appropriate.

Oil & Gas Operational

Despite the larger share of the Oil & Gas sector value chain emissions being driven by end use, addressing its operational emissions is also important to energy transition. The Oil & Gas sector's operational emissions include those associated with extraction, refining and transport and, in particular, the release of methane. While the scope and scale of these emissions vary by source and production method, they are significant. IEA's analysis shows that Scope 1 & 2 (Operational) emissions represent between 10% and 30% of total lifecycle carbon intensity for oil and between 15% and 40% for natural gas[7]. In total, the operational footprint of oil and gas production currently accounts for approximately 10% of global GHG emissions[8].

Global contribution of each lever to the reduction of total emissions from oil and natural gas operations in the IEA NZE scenario, 2022–2030



Source: Emissions from Oil and Gas Operations in Net Zero Transitions – A World Energy Outlook Special Report on the Oil and Gas Industry and COP28, IEA, Paris, May 2023

To reduce operational emissions, companies involved in upstream production and processing segments can invest to reduce venting and flaring of methane and switch to lower-carbon energy sources for production equipment. Companies with refining operations can work to reduce process-related CO_2 emissions.

Significant progress, especially in areas such as methane emissions, is achievable this decade, which will help the industry to reduce the emissions generated from oil and natural gas value chains for as long as it remains part of the overall energy mix[9].

7 IEA (2020), IEA Methane Tracker 2020, IEA, Paris

8 IEA (2023), Emissions from Oil and Gas Operations in Net Zero Transitions, IEA, Paris; World Resources Institute (2026), Climate Watch

9 To this effect, we published The Methane Emissions Opportunity: Our perspective on leveraging technology in continuous improvement in the Oil and Gas sector in 2023. This report describes energy security, climate and business benefits of immediate action to reduce methane emissions and flaring in the Oil & Gas sector, and identifies best-in-class and positive actions companies can consider implementing.

Key decisions

Our Oil & Gas Operational target focuses on the intensity of Scope 1 and 2 emissions from production and/or refining activities, which account for the majority of the sector's operational emissions. Emissions are measured on an intensity basis and benchmarked to targets derived from the energy pathways published as part of the IEA NZE scenario.

A key element of our approach to operational emissions is recognition of the need for a rapid decline in fugitive and vented methane emissions, including the release of unburnt natural gas from flare stacks and CO_2 from flaring. IEA analysis consistent with NZE suggests the need for an 86% reduction in methane emissions, a >98% reduction in CO_2 emissions from flaring and a 42% reduction in CO_2 emissions from all other activities and processes between 2019 and 2035. This framework is applied to our portfolio to derive our 2035 reduction target of 47% for Operational carbon intensity from a 2019 baseline.

Sector portfolio target summary – Oil & Gas

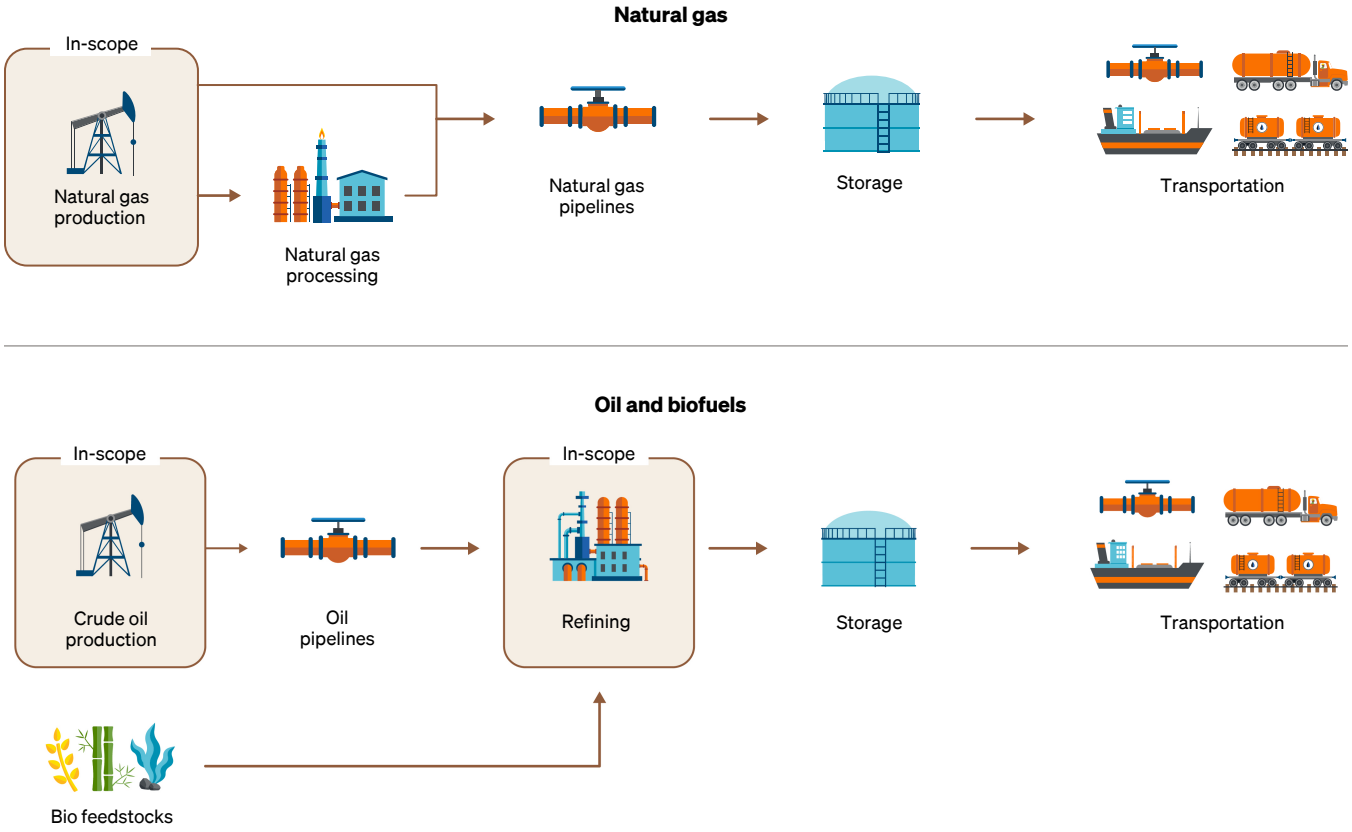
Activity focus	Production and refining of oil, natural gas, bioenergy and other energy products
Scope	Scope 1 and 2 CO_2 and methane emissions
Metric	g CO_2e / MJ
Scenario	IEA NZE with methane added based on supplemental IEA data consistent with IEA NZE scenario
2035 target	47% intensity reduction from 2019 baseline
Data sources	Wood Mackenzie, company disclosures

Methodology detail

Boundaries

Our Oil & Gas Operational target is focused on all portfolio companies that are involved in production and/or refining activities. This includes both pure-play exploration and production and refining companies, integrated majors and nationally owned oil companies, as well as diversified companies with oil and gas activities. Emissions from the production of low-carbon fuels, such as biofuels or hydrogen, by Oil & Gas companies are also included. The methodology does not include transportation of oil and natural gas products.

Oil & Gas Operational value chain



For upstream production activities, Scope 1 includes emissions from fugitive and vented methane emissions, including the release of unburnt natural gas from flare stacks, and CO_2 emissions from flaring and any on-site use of fossil fuels. Scope 2 emissions include those from grid electricity used for operational activities. Although these are generally a small proportion of overall emissions, they reflect a notable decarbonization lever as more upstream facilities and refineries are electrified.

For refining, Scope 1 and 2 emissions primarily result from the use of fossil fuels for heat and reliance on fossil-based electricity grids. Decarbonization efforts include expanding the use of low-emissions electrolysis hydrogen and electrifying processes so they can rely more on zero-carbon power. Addressing methane emissions is one of the most important levers that contributes to the overall reduction in emissions from the sector's operations, followed by eliminating routine flaring and increased electrification. Scaling up CCS/CCUS and expanding the use of low-emissions hydrogen also play complementary roles in reducing the operational emissions, while having the potential to contribute to low-carbon transition efforts of other sectors, such as Cement and Iron & Steel.

Metric

We measure the emissions intensity of Oil & Gas Operational activity using the metric grams CO_2e per megajoule of embedded energy.

$$\frac{\text{Scope 1 + 2 Emissions - Credits (g } CO_2e)}{\text{Embedded Energy in Oil + Natural Gas + Bioenergy (MJ)}}$$

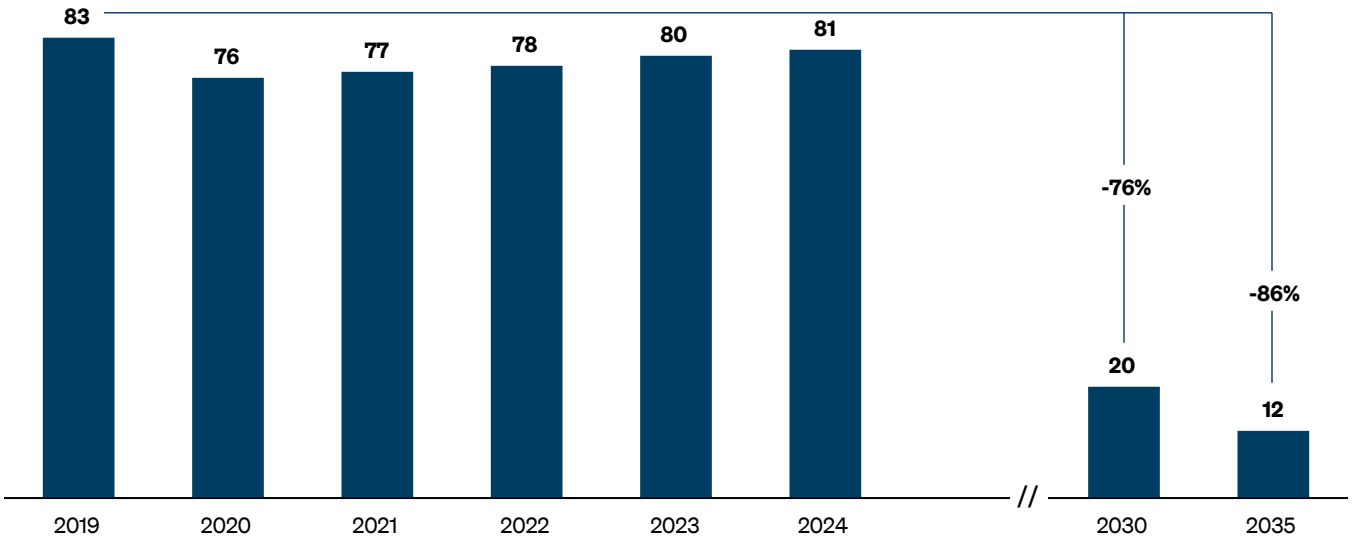
The Operational carbon intensity metric is calculated as CO_2 and methane emissions divided by energy embedded in natural gas, oil and bioenergy that is produced. For oil refineries, refinery throughput is used in the denominator.

Scenario and target

The benchmark trajectory for our Oil & Gas Operational target is based on the IEA NZE scenario, which we use to calculate net-zero-aligned rates of change and a resulting carbon intensity in g CO_2e/MJ for our portfolio. The benchmark is calculated by applying the following framework to our portfolio baseline in 2019:

- 86% reduction in methane emissions, as indicated by IEA's Methane Tracker 2025[10]
- >98% reduction in CO_2 emissions from flaring, as referenced in IEA's 2023 report on emissions from Oil & Gas operations[11]
- 42% reduction in CO_2 emissions associated with other energy use (e.g., engines used to power compressors, drilling rigs and other equipment)

Global Oil & Gas methane emissions (Mt) in NZE scenario, 2030 and 2035



Source: Global Methane Tracker 2025

Note: 2030 & 2035 projections represent the IEA NZE scenario and are sourced from Global Methane Tracker published in May 2025.

This results in the numerator for the 2035 IEA intensity. The 2035 denominator is the sum of global oil and gas energy in the IEA NZE scenario. The rate of change between the IEA 2019 and 2035 operational oil and gas emissions intensities is then calculated, which yields a 47% reduction.

This 47% reduction represents our 2035 Oil & Gas Operational target, and is applied to our 2019 baseline global portfolio Operational Oil & Gas carbon intensity of 4.9 g CO_2e / MJ.

[10] IEA (2025), Global Methane Tracker 2025, IEA, Paris
[11] IEA (2023), Emissions from Oil and Gas Operations in Net Zero Transitions, IEA, Paris

Data sources and considerations

To calculate Operational carbon intensity for Oil & Gas clients, we currently use upstream oil and natural gas and refining data collected and maintained by Wood Mackenzie. Production and refining data from Wood Mackenzie uses the net working interest method of aggregating asset-level (field- or refinery-level) data up to the parent company. Additional sources including direct company disclosures and syndicated databases are also used to collect and verify specific data points for our model. For companies not adequately covered by these sources, we use proxy values equivalent to the 75th percentile of the available data for other portfolio companies, based on the type of operations.

Data quality and reliability is a well-known challenge for the Oil & Gas sector. This generally arises from inconsistencies in measurement, management and reporting of data across the industry, as well as the lack of reliable and standardized techniques for measurement in areas such as methane. Although the situation is gradually improving, it remains a key concern of industry groups, NGOs and other stakeholders engaged in efforts to decarbonize the sector, and it was an important consideration in how our Oil & Gas sector methodology was formulated.

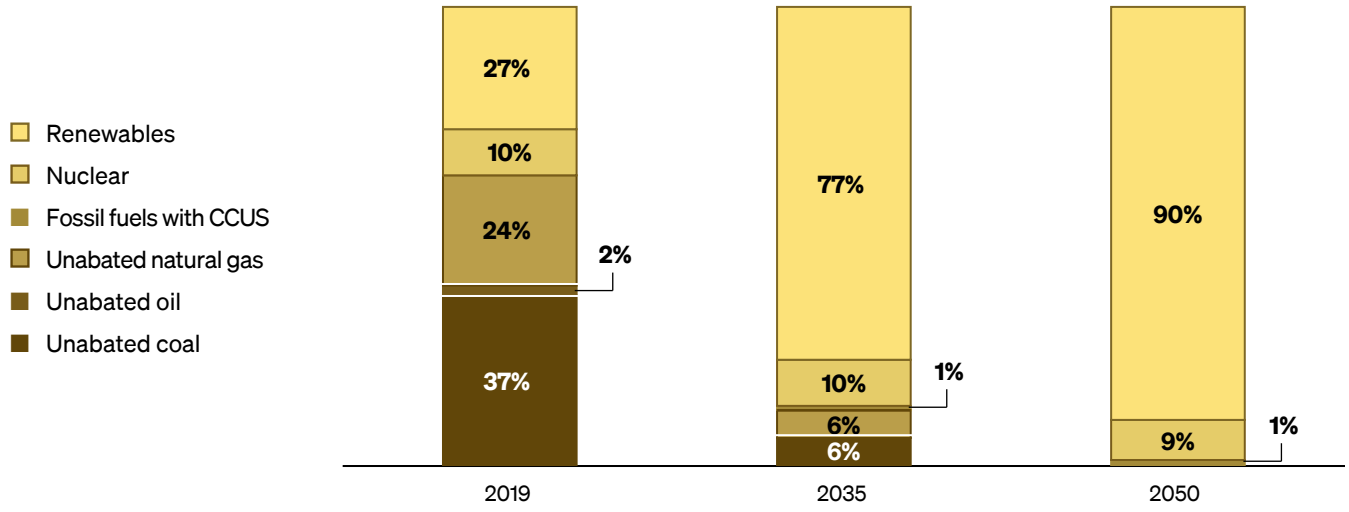
Currently, reported methane emissions data primarily relies on inference methods. JPMorganChase intends to continue working with industry partners to help make direct measurement technologies the preferred method of tracking methane emissions, which should improve the quality of methane data in the future.

We plan to continue to engage with our Oil & Gas portfolio clients and work with other industry stakeholders to improve data availability and reliability. Future refinements and improvements in data may necessitate changes to our baseline emissions calculations. Over time, we expect that increased consistency in approaches to measure and report emissions will lead to advances that we can incorporate into our Carbon Compass® methodology as we deem appropriate.

Electric Power

Globally, power generation is the single largest use for fossil fuels and accounts for approximately 34% of global GHG emissions[12]. At the same time, in the IEA NZE scenario electrification offers a key pathway for decarbonizing other sectors responsible for significant emissions, including transportation, industry and buildings. As a result, the sector faces the double challenge of accelerating decarbonization while continuing to meet growing demand for electricity worldwide.

Global electricity generation fuel mix in the IEA NZE scenario



Source: IEA World Energy Outlook

Note: 2019 data is sourced from World Energy Outlook 2021, published in October 2021. 2035 and 2050 projections represent the IEA NZE scenario and are sourced from World Energy Outlook 2025, published in November 2025. Excludes Hydrogen & Ammonia.

Today, the Electric Power sector produces significant emissions due to continued reliance on fossil fuels, especially coal. Decarbonization of the sector hinges on increased deployment of renewable and other low- or zero-carbon generating capacity, alongside enabling technologies and infrastructure such as energy storage, grid modernization and carbon capture. Significant investment and innovative financing solutions will be necessary to build new infrastructure, develop and commercialize new technologies, manage risk and improve cost-effectiveness, while maintaining energy security, availability and affordability.

With the historic expansion of in-scope activities included in our Energy Mix intensity target, we have created a linkage between the decarbonization of our Electric Power portfolio and progress toward our Energy Mix target. Due to this partial overlap between both targets, we will include our financing of companies involved in the production of zero-carbon electricity in our calculations for both targets. A pro-rated share of exposure from our Electric Power portfolio, based on the zero-carbon proportion of clients' total generation activity, is combined with our Oil & Gas portfolio. This approach also reflects our focus on supporting the financing of zero-carbon power generation activities.

[12] World Resources Institute (2026), Climate Watch

Key decisions

Our target for the Electric Power sector focuses on the intensity of Scope 1 CO_2 emissions from electricity generation, which enables us to focus directly on the sector's core business activity and the primary driver of its GHG emissions.

Our Power target carbon intensity is based on the global trajectory from the IEA NZE scenario. From this, we derived a 2035 target of 72.4 kg CO_2 / MWh, representing a 79% reduction from our 2019 baseline of 342.6 kg CO_2 / MWh.

Sector portfolio target summary – Electric Power

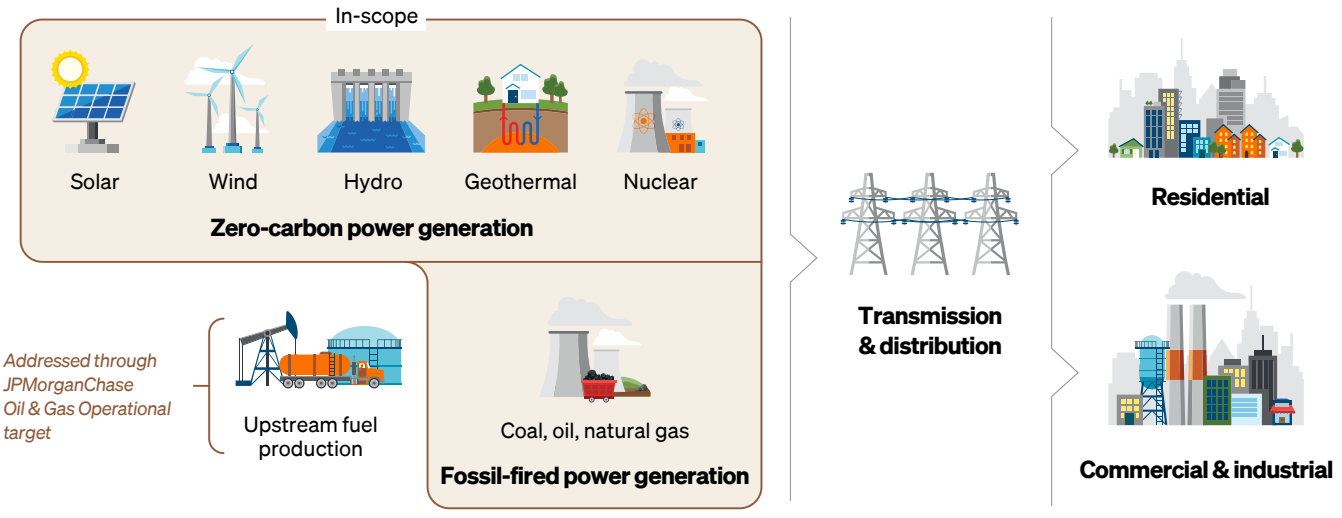
Activity focus	Power generation
Scope	Scope 1 CO_2 emissions from fuel combustion for power generation
Metric	kg CO_2 / MWh
Scenario	IEA NZE
2035 target	72.4 kg CO_2 / MWh
Data sources	S&P Global Trucost, S&P Global SNL Financial, company disclosures

Methodology detail

Boundaries

For the purposes of our Carbon Compass® methodology, the Electric Power sector consists of all portfolio companies engaged in electricity generation. This includes both public and investor-owned utility companies, independent power producers and electric cooperatives, as well as diversified companies with power generation activities.

Electric Power sector value chain



To evaluate the sector's emissions, we measure companies' direct Scope 1 carbon emissions from power generation. This allows us to concentrate on the part of the value chain responsible for the majority of the sector's emissions and thus where the greatest amount of strategic focus and investment are needed. We do not include Scope 2 and 3 emissions for the sector as the focus is on direct emissions from power generation. Focusing on Scope 1 emissions is also consistent with the modeling approach in IEA's World Energy Outlook projections, which allows for direct comparison of our portfolio with IEA benchmark scenario data.

Metric

The emissions intensity of our Electric Power sector portfolio is evaluated using the metric kilograms CO_2 per megawatt-hour of electricity generated.

$$\frac{\sum \text{Power generated by generation type (MWh)} \times \text{Emission factor} \left(\frac{\text{kg } CO_2}{\text{MWh}}\right)}{\sum \text{Power generated by generation type (MWh)}}$$

Scenario and target

The benchmark trajectory for the sector is based on sector-specific projections of CO_2 emissions associated with the generation of power from the IEA NZE scenario.

Our previous Electric Power target was designed to account for the split of clients in our portfolio between Organization for Economic Co-operation and Development (OECD)- and non-OECD regions by using regional IEA NZE sector pathways and weighting our target based on the split. In this update, we are moving from a regionally weighted approach to one that utilizes a single pathway aligned with the IEA's NZE global power pathway. This approach supports consistent engagement for power and utility clients regardless of domicile and aligns with where transition financing needs are greatest.

The IEA NZE global power pathway implies that by 2035, a significant portion of the generation mix would gravitate toward non-OECD countries, and OECD countries would decarbonize fully and at a pace that would be faster than non-OECD countries. We note that (a) our current portfolio is significantly weighted toward OECD economies, and (b) the actual pace of decarbonization in OECD countries versus non-OECD countries has varied over the past few years depending on the time period in question. Notwithstanding these observations, the IEA NZE scenario maps out an ambitious pathway for the global energy system on what it would take to reach global, net-zero energy-related CO_2 emissions by 2050, and therefore, achieving that outcome is not assured and has become increasingly challenging.

As a result, we have derived a carbon intensity target for 2035 of 72.4 kg CO_2 / MWh, representing a 79% reduction from our 2019 baseline of 342.6 kg CO_2 / MWh.

Data sources and considerations

To calculate the carbon intensity of companies in our Electric Power portfolio, we use generation data sourced from S&P Global Trucost and apply emissions factors based on fuel type and region that are derived from IEA World Energy Outlook data. If generation data is unavailable, we use installed capacity from S&P Global SNL Financial and estimate carbon intensity by applying average utilization rates, based on fuel type and region, and the aforementioned emissions factors.

For a small proportion of companies in our portfolio for which no data is available, a default carbon intensity based on a relatively conservative fuel mix that is equal parts coal and natural gas is assigned, unless the company's NAICS codes indicate it to be a zero-emitting power producer, in which case it is assigned a carbon intensity of zero.

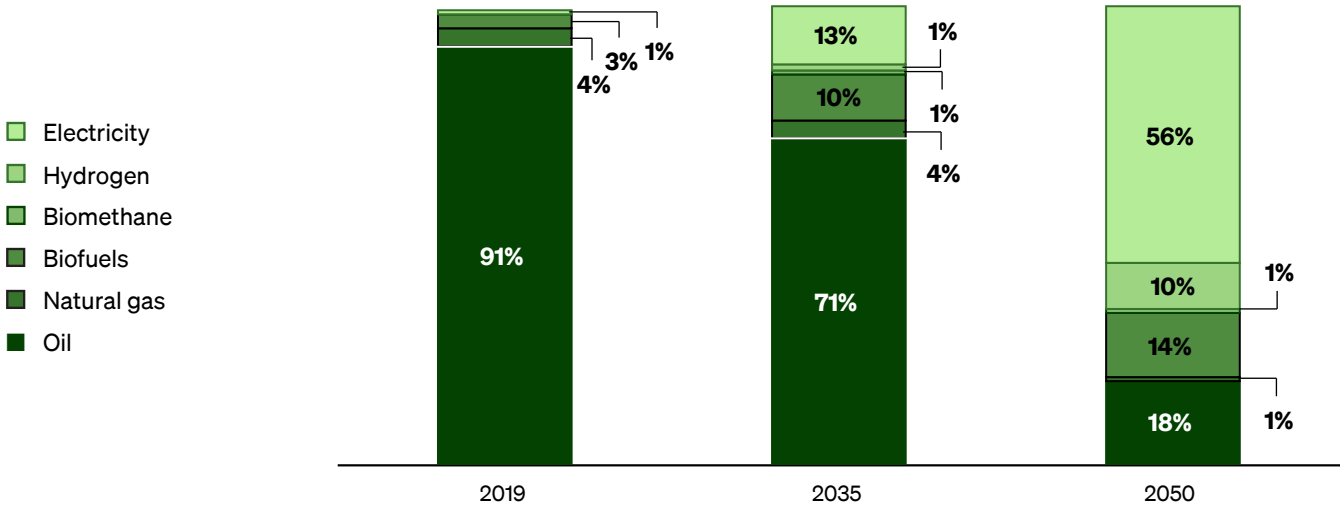
Moving forward, we plan to continue to monitor developments in the availability of data — especially those relevant to the evolving composition of our portfolio and the further development of sector decarbonization strategies — and consider updates to our methodology as we deem appropriate.

Transportation carbon intensity targets

JPMorganChase's transportation sector carbon intensity targets cover Auto Manufacturing, Aviation and Shipping, reflecting three major transportation segments with distinct decarbonization pathways.

In the IEA's latest NZE scenario, the outlook for transportation decarbonization through 2035 continues to be driven by greater electrification and efficiency, alongside increased deployment of sustainable fuels. Compared with earlier iterations of the NZE scenario, the latest pathway reflects a more measured pace of near-term technology deployment, while maintaining the transformation required to reach net zero by 2050. For example, EV adoption continues to rise but at a slower pace than previously expected in select geographies. In this scenario, electrification remains the primary decarbonization lever for Auto Manufacturing, while Aviation and Shipping would have to increasingly rely on sustainable fuels, including biofuels and hydrogen-based fuels, where direct electrification is more challenging. The pace and mix of these solutions vary by sector and region, reflecting differences in technology readiness, infrastructure and market conditions.

Transportation sector final consumption in the IEA NZE scenario



Source: IEA World Energy Outlook

Note: 2019 data is sourced from World Energy Outlook 2021, published in October 2021. 2035 and 2050 projections represent the IEA NZE scenario and are sourced from World Energy Outlook 2025, published in November 2025.

Auto Manufacturing

Road transportation accounts for approximately 13% of global GHG emissions[13]. Although automotive efficiency continues to improve, both global sales and driving activity have rebounded following the COVID-19 pandemic, while buyers in many markets have continued to shift toward larger, heavier vehicles such as SUVs — trends that have helped contribute to increased emissions in recent years. Despite rising sales of electric vehicles (EVs) globally, the IEA notes that transport-related emissions would need to fall at an accelerated rate for the world to align with the NZE scenario[14].

Transition strategies for the automotive sector generally call for: (i) conversion of a significant portion of the fleet to EVs; (ii) increased efficiency of internal combustion engine (ICE) vehicles; (iii) further decarbonization of the electric grids that power EVs; and (iv) increased utilization and/or reduced per capita vehicle miles traveled through strategies including demand management and modal shift (e.g., from private to public transport).

Auto manufacturers contribute most directly to the first two strategies above. Namely, as sales of EVs and more efficient ICE vehicles increase, the average carbon intensity of the global fleet declines, indicating progress toward net-zero emissions in terms of technology deployment.

The transition to EVs has been supported by numerous factors, including regulation, tax incentives, technological advances and competition — all of which have contributed to increasing consumer interest and acceptance. Yet even with these drivers in place, shifting the course of the global auto industry remains a significant undertaking. New and further investments in technology, manufacturing, infrastructure and services are needed and must coincide with equally massive transitions in other parts of the economy — including in the Electric Power and Oil & Gas sectors — to achieve net-zero emissions by 2050. This is a key reason why Auto Manufacturing was among the first sectors we set targets for, and why we are supporting in-scope clients as they continue to develop and implement their transition strategies.

Key decisions

To assess net-zero alignment of our Auto Manufacturing portfolio, we evaluate the carbon intensity of global sales of new passenger cars and U.S. sales of light trucks (e.g., SUVs, vans, pickups). Both manufacturing emissions (Scope 1 and 2) and emissions from the end use of vehicles (Scope 3) are included.

The benchmark emissions trajectory for the sector was obtained using the sector-specific emissions and activity pathways in the IEA NZE scenario. Although the scenario focuses on fleet emissions, we can reasonably extrapolate the rate-of-change to apply to tailpipe emissions from new vehicle sales and manufacturing, enabling us to determine an emissions trajectory that is compatible with our chosen metric.

From this, we derived a 2035 target of 57.7 g CO_2e / km, representing a 65% reduction from our revised 2019 baseline of 164.8 g CO_2e / km.

[13] World Resources Institute (2026), Climate Watch
[14] IEA (2025), World Energy Outlook 2025

Sector portfolio target summary – Auto Manufacturing

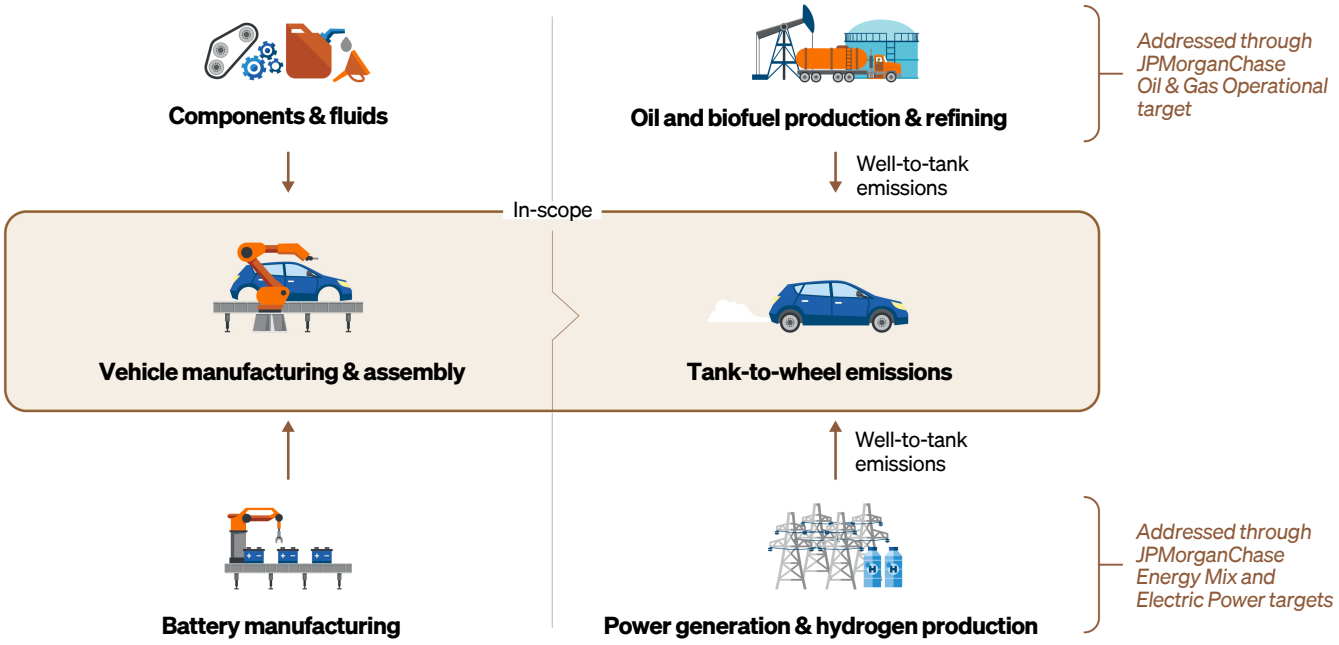
Activity focus	Manufacturing of global passenger cars and U.S. light trucks
Scope	Scope 1 and 2 GHG emissions from manufacturing Scope 3 end-use tank-to-wheel emissions from fuel combustion, based on the Worldwide Harmonized Light Vehicles Test Procedure (WLTP)
Metric	g CO_2e / km
Scenario	IEA NZE
2035 target	57.7 g CO_2e / km
Data sources	Transition Pathway Initiative (TPI), National Highway Traffic Safety Administration (NHTSA), S&P Global Market Intelligence, S&P Global Trucost, company disclosures

Methodology detail

Boundaries

The Auto Manufacturing sector methodology includes tank-to-wheel (i.e., tailpipe) emissions from vehicle use (Scope 3 — end use) and emissions from manufacturing (Scope 1 and 2). To evaluate companies' emissions, we focus on emissions associated with global sales of new passenger cars and U.S. sales of light trucks (SUVs, vans, pickups). We include U.S. light trucks because they account for the majority of total U.S. passenger vehicle sales and because of differences in how they are regulated in the U.S. versus other global markets (i.e., as passenger versus commercial vehicles).

Auto Manufacturing sector boundary



The focus on end-use emissions from companies' new passenger vehicle sales reflects that these represent the largest share of the sector's overall emissions. We do not include emissions from the production and delivery of the energy used by vehicles (Scope 3 — fuel production). This keeps our methodology focused on the vehicles that client companies are producing, while also reflecting that Carbon Compass® separately covers the Oil & Gas and Electric Power sectors, which provide fuel for ICEs and EVs, respectively.

We also do not include emissions "embedded" in parts and materials that manufacturers purchase from third parties (Scope 3 — supply chain). However, we recognize that embedded manufacturing emissions are material to comprehensive assessment of the Auto Manufacturing sector's net-zero alignment, especially as EVs — whose supply chain emissions are materially higher than those for ICEs, primarily due to battery production — make up a growing share of total sales. To address this gap, when evaluating individual auto companies, we will collect and qualitatively analyze manufacturer data on supply chain plans and goals, particularly as they relate to efforts toward reducing emissions from battery manufacturing. We also plan to continue to evaluate how we might include supply chain emissions in the future, as the required data becomes available.

Metric

The emissions intensity of our Auto Manufacturing sector portfolio is evaluated using the metric grams CO_2e per kilometer for new cars sold, assuming 200,000 km of vehicle life measured on a global average basis.

$$\frac{\text{Scope 1 \& 2 Emissions from Manufacturing - Credits (g } CO_2e)}{\text{Lifetime Kilometers of New Global Cars and U.S. Light Trucks (km)}} + \text{TTW Emissions of Global Cars and U.S. Light Trucks (g } CO_2/km)$$

Scenario and target

The benchmark trajectory for our Auto Manufacturing sector methodology is based on the sector-specific projections of tailpipe CO_2 emissions and passenger vehicle activity from the IEA NZE scenario.

Although the scenario focuses on fleet emissions, we can reasonably extrapolate the rate-of-change to apply to tailpipe emissions from new vehicle sales and manufacturing to derive our 2035 target.

Using this approach, we have established a 2035 Auto Manufacturing sector portfolio intensity target of 57.7 g CO_2e / km, representing a 65% reduction from our 2019 baseline of 164.8 g CO_2e / km.

Data sources and considerations

To calculate the carbon intensity of companies in our Auto Manufacturing sector portfolio, we use the approach developed by the Transition Pathway Initiative (TPI) for deriving g CO_2 / km from reported average miles per gallon (MPG) aligned to the WLTP, with minor modifications to include U.S. light truck sales and Scope 1 and 2 manufacturing emissions.

We estimate the carbon intensity for U.S. light trucks using TPI's methodology and the company's average fuel economy for light trucks reported by the National Highway Traffic Safety Administration (NHTSA). This is combined with the company's TPI-reported value for global cars on a sales-weighted basis.

Finally, Scope 1 and 2 emissions, amortized over the expected life of manufactured vehicles, are added to Scope 3 intensity to derive the company's combined g CO_2e / km value. If certain data required for the metric calculation are unavailable, we use a conservative proxy value equivalent to the 75th percentile of the available data for other portfolio companies.

It should be noted that calculations for clients in our Auto Manufacturing sector portfolio will generally be subject to a two- to three-year data lag. This is due to a significant lag in reporting of certified model year fuel economy and sales values due to typically long sales cycles (i.e., up to 22 months spanning three calendar years) for individual model years in the U.S. To account for this delay, in select instances, we make extrapolations based on historical data that will be restated when verified data is published.

Aviation

The Aviation sector currently accounts for approximately 2% of global GHG emissions, mainly from commercial airline operations[15]. It is considered a hard-to-abate sector because of the significant technological barriers to replacing fossil fuels in its operations and the high cost of solutions such as sustainable aviation fuels (SAF) and fleet replacement. Options for decarbonization are also constrained by challenging industry economics, which have been amplified by events including the COVID-19 pandemic and energy market disruptions due to geopolitical conflicts and uncertainty in Ukraine and the Middle East.

To date, the industry has made progress primarily through fleet modernization, with newer engine technologies, lighter materials, improved aerodynamics and other factors contributing to a more than 55% reduction in emissions per passenger kilometer since 1990[16]. Higher passenger load factors (i.e., increasing the utilization of aircraft space, especially relative to fuel consumption) and operational improvements have also contributed to a reduction in emissions intensity. Looking forward though, deeper decarbonization of the sector will require significantly scaling the adoption of SAF and other low-carbon technologies, such as electric and hydrogen-fueled propulsion systems.

Bringing each of these options to scale will require significant investment both within and beyond the airline industry dependent on industry-wide and global cooperation. In particular, rapidly reducing costs and scaling both production and distribution of SAF are key priorities requiring action by multiple stakeholders, including airlines, aircraft and engine manufacturers, lessors, governments, energy companies, the agricultural sector and others.

Key decisions

To assess alignment of our Aviation sector portfolio with the IEA NZE scenario, we evaluate the intensity of direct (Scope 1) CO_2 emissions for revenue-generating passenger service and belly freight operations of airline companies, specifically from the combustion of fuels during flight — also referred to as tank-to-wake (TTW) emissions.

We derived a net-zero-aligned carbon intensity trajectory for the sector using emissions data from the IEA NZE scenario, adjusted to exclude emissions from dedicated air freight, along with detailed global flight activity data from the Platform for Analyzing Carbon Emissions (PACE). From this we derived a 2035 target of 606.5 g CO_2 / RTK, representing a 38% reduction from our 2021 baseline of 972.6 g CO_2 / RTK.

Sector portfolio target summary – Aviation

Activity focus	Scheduled passenger service and belly freight by airline companies
Scope	Scope 1 tank-to-wake (TTW) CO_2 emissions from flights
Metric	g CO_2 / revenue tonne kilometer (RTK)
Scenario	IEA NZE with an adjustment to exclude emissions for dedicated air freight
2035 target	606.5 g CO_2 / RTK
Data sources	Platform for Analyzing Carbon Emissions (PACE), International Civil Aviation Organization (ICAO), company disclosures

15 World Resources Institute (2026), Climate Watch
16 IATA (2026), Net Zero 2050: Operations & Infrastructure Fact Sheet

Methodology detail

Boundaries

Our Aviation sector methodology focuses on Scope 1 CO_2 emissions from revenue-generating passenger service and belly freight operations of airline companies. We chose this focus because Scope 1 emissions from flights currently represent the majority of airlines' operational emissions, on average, and passengers and belly freight account for the bulk of the sector's activity[17].

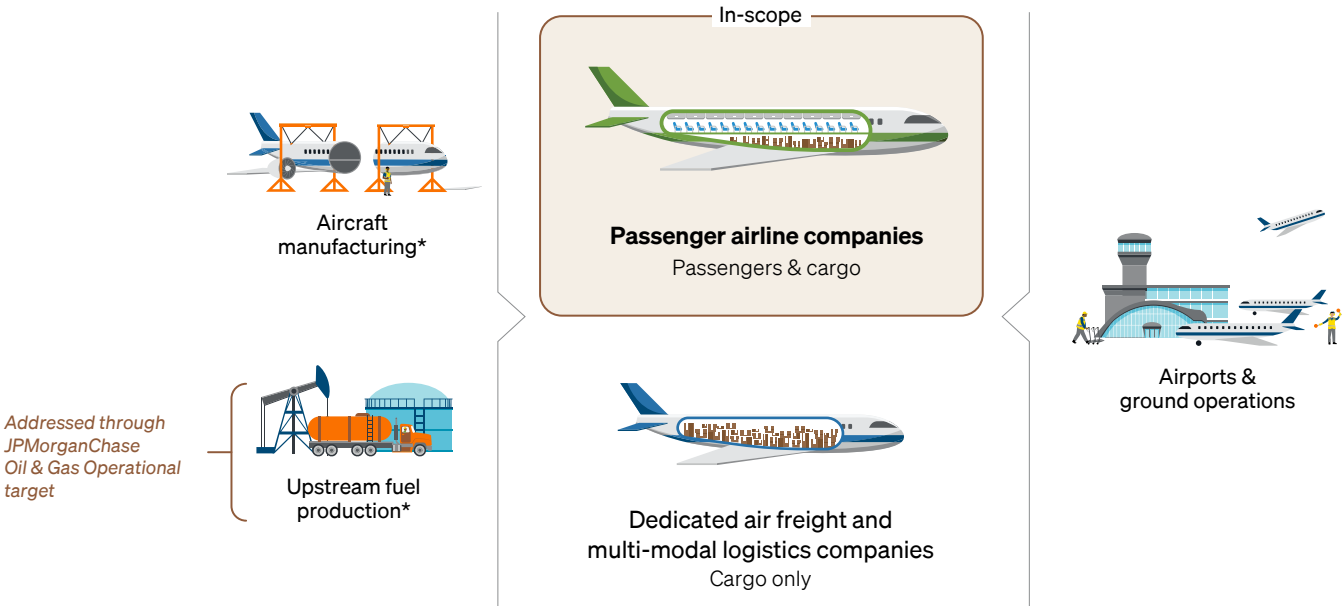
Dedicated air freight and multi-modal logistics companies also play an important role in the sector but are currently not in-scope for our target. This is because they represent only a marginal share of total emissions, and also due to challenges with data availability, most notably for distinguishing the share of activity and emissions attributable to aviation compared to other forms of transport used by multi-modal logistics companies.

For our Aviation sector target, we currently focus on Scope 1 emissions from flights, or tank-to-wake (TTW) emissions, resulting primarily from the combustion of jet fuel. A potential well-to-wake (WTW) scope was also considered, in order to capture upstream (Scope 3) emissions associated with fuel production, which are especially important to understanding the impact of SAF. However, upstream emissions for fossil-based jet fuel are already covered by our Oil & Gas Operational target, and SAF volumes are currently too low to have a significant impact on the overall emissions picture, so these emissions are currently not included as in-scope for our target. Moving forward, we plan to continue to monitor market practices and data availability for assessing the SAF value chain with the intention of incorporating relevant emissions in our target in the future as we deem appropriate.

Although our sector boundary only includes direct emissions from flights, it is important to note that airlines' ability to reduce them is dependent on the actions of other stakeholders, both within and beyond the broader Aviation sector. Key future actions include further improvements in engine efficiency, new types of aircraft and propulsion systems, innovative financing structures, and new policies and incentives to support industry-wide action. Efforts are also needed to help further scale the production, deployment and accessibility of SAF, which is expected to be the key lever for decarbonizing the sector in the near-to-medium term. While we aim to work closely with airlines to advance all of the above, it is equally important for us to engage with other relevant clients — such as engine and aircraft manufacturers, lessors, agricultural producers and others — on their role in enabling transition for this sector.

[17] U.S. Federal Aviation Administration (FAA) (2021), 2021 Aviation Climate Action Plan, FAA, Washington, D.C.

Aviation sector boundary



* Out of scope but included in JPMorganChase engagement efforts with relevant clients

In addition to CO_2 emissions from flights, we also recognize the importance of non-CO_2 effects, specifically emissions of other aerosol particles that may increase the sector's overall climate impact. However, these effects are not currently included in our approach, as there is not yet a clear consensus on how they should be accounted for. This is also consistent with IEA's current methodology for projecting Aviation sector emissions, which includes only end-use CO_2 emissions from jet fuel combustion, as well as with the Science Based Target initiative's (SBTi's) Aviation tool.

Metric

We measure the emissions intensity of Aviation sector clients using the metric grams CO_2 per revenue tonne kilometer (RTK), with RTK reflecting the combination of revenue passenger kilometers (RPK) and freight tonne kilometers (FTK).

$$\frac{\text{Scope 1 TTW Emissions - Credits (g } CO_2\text{)}}{\text{Revenue Passenger Kilometers (RPK) + Freight Tonne Kilometers (FTK)}}$$

While airlines commonly use the activity metric RPK, we have chosen RTK to capture both passenger and belly freight activity, recognizing that the latter accounted for a larger share of the industry's activity during the COVID-19 pandemic. We convert RPK to RTK using a conversion factor of 100 kg per passenger, which is consistent with guidance from SBTi and IATA, and is also used by several airlines in their own reporting.

Scenario and target

The benchmark trajectory for our Aviation portfolio is based on the IEA NZE scenario, which includes detailed projections of emissions and passenger activity through 2050. To improve alignment of our approach with the IEA methodology, emissions attributable to dedicated air freight activity are removed from IEA's total emissions projection.

Using the adjusted scenario projections, combined with detailed data on passenger and belly freight activity from PACE, we derived a 2035 target of 606.5 g CO_2 / RTK, which represents a 38% reduction from our 2021 baseline of 972.6 g CO_2 / RTK.

Data sources and considerations

To calculate the carbon intensity of companies in our Aviation sector portfolio, we use detailed Scope 1 emissions data modeled by PACE, and historical passenger and belly freight activity data derived from the International Civil Aviation Organization (ICAO), supplemented by company-reported data where necessary.

We have chosen to use PACE's modeled flight emissions data to isolate emissions from flight activity. This enables us to exclude other Scope 1 emissions from ground operations and other ancillary non-aviation services (such as complementary road transport, bus operations, etc.), which most closely aligns to our choice of boundary. Furthermore, the use of modeled data by PACE standardizes the emissions calculation methodology for all our clients, improving comparability. Modeled aircraft-level data also provides greater client coverage and data transparency, which are central to effective engagement with our clients. Similarly, ICAO's detailed data on global flight activity provides a consistent and comprehensive reference for comparison of individual airlines' passenger and belly freight activities. In the event that data is unavailable or incomplete for a given company, we use a proxy value equivalent to the 75th percentile of the available data for other portfolio companies.

Moving forward, we plan to continue to monitor developments in the availability of data — especially those relevant to the evolving composition of our portfolio and the further development of sector decarbonization strategies — and consider updates to our methodology as we deem appropriate. For the Aviation sector specifically, this may include monitoring available data and analytic techniques relating to the global warming impact of aircraft contrails, along with developments in the visibility of emissions originating in the SAF value chain.

Shipping

Maritime shipping plays a central role in global commerce, carrying an estimated 80% of trade by volume[18], including many of the products produced and/or relied upon by other sectors included in Carbon Compass®. The Shipping sector is responsible for approximately 2% of global GHG emissions, driven primarily by fuel combustion in international shipping vessels used for freight transportation[19]. Although the sector's emissions declined considerably during the COVID-19 pandemic, they have since rebounded along with overall trade and could rise further as shipping volumes resume their long-term growth trajectory.

In the short term, meaningful reduction in CO_2 emissions from shipping can be made through efficiency measures, such as optimizing sailing speed and improving logistics communication to enhance arrivals and departures through just-in-time sailing.

Long-term decarbonization of the sector depends on transitioning from its current reliance on oil-based fuels to alternatives such as biofuels, hydrogen, ammonia and electricity. However, progress to date has been slow due to the lack of availability and scalability of these technologies, as well as the substantial costs and complexities of replacing or retrofitting existing ships. In addition, the global nature of the industry and fragmentation of applicable policy and regulatory frameworks have made it difficult to coordinate and scale efforts across jurisdictions. Based on the above constraints, the sector may deviate from the IEA NZE scenario. While we continue to support our shipping clients in their efforts to improve their carbon intensity performance, we are also clear that meeting our target is dependent on the industry's continued technological development, capital investment and international cooperation to introduce ambitious global decarbonization standards.

Key decisions

Our target for the Shipping sector focuses on the intensity of Scope 1 tank-to-wake (TTW) CO_2 emissions from the combustion of fuels by international maritime freight transportation vessels. We calculate intensity using the Energy Efficiency Operating Indicator (EEOI) developed by the International Maritime Organization (IMO), which captures both vessel design and operational levers for reducing emissions in the sector.

The benchmark emissions trajectory for the sector was obtained from the sector-specific emission and activity pathways in the IEA NZE scenario. This results in a 2035 target of 4.8 g CO_2 / tonne-nautical mile (nm), representing a 60% reduction from our 2021 portfolio baseline of 11.9 g CO_2 / t-nm[20].

Sector portfolio target summary – Shipping

Activity focus	International maritime freight transportation
Scope	Scope 1 tank-to-wake (TTW) CO_2 emissions from vessels
Metric	g CO_2 / tonne-nautical mile (t-nm)
Scenario	IEA NZE
2035 target	4.8 g CO_2 / t-nm
Data sources	Transition Pathway Initiative (TPI), company disclosures

18 UNCTAD (2022), Review of Maritime Transport 2022, UNCTAD, Geneva
19 World Resources Institute (2026), Climate Watch
20 In 2025, we revised 2021 portfolio baseline for Shipping to 11.9 g CO_2 / t-nm from previously disclosed 10.9 g CO_2 / t-nm.

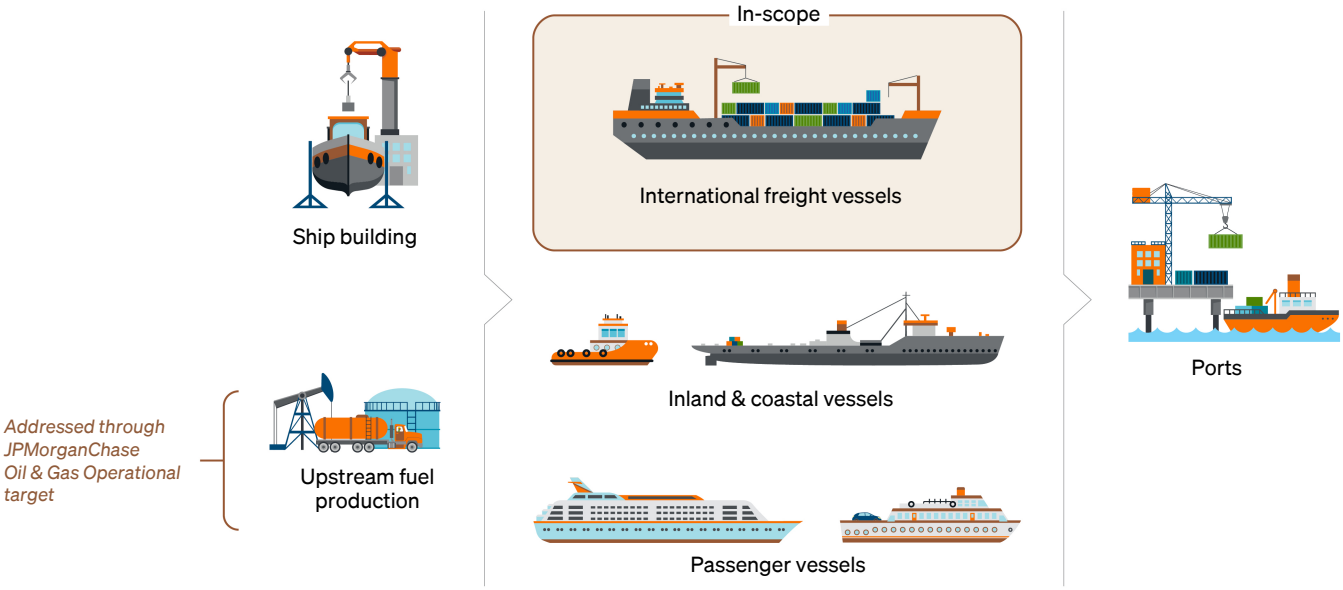
Methodology detail

Boundaries

Our Shipping sector methodology focuses on Scope 1 TTW CO_2 emissions from international shipping of freight. We chose this focus because Scope 1 emissions from international vessel operations currently represent a majority of the sector's emissions, on average, and freight shipping accounts for the bulk of its activity[21].

We currently do not include passenger transport (for example, cruise ships) and domestic shipping activity (for example, coastal shipping between ports in the same country or inland waterway transport), due to their negligible contribution to the sector's emissions.

Shipping sector value chain



We include Scope 1 TTW emissions, as this captures the industry's long-term transition from reliance on fossil fuels to low- or zero-carbon alternatives. We do not currently include emissions from the production and delivery of the energy used by vessels (Scope 3 — fuel production). This keeps the Shipping sector methodology focused on the direct fuel use of vessels, efficiency characteristics and operations of the vessels that clients own, while also reflecting that Carbon Compass® already separately covers the Oil & Gas sector, which provides fuel for the global shipping industry. The methodology currently assumes no end-use emissions from the use of biofuels, as any such emissions are generally offset by carbon storage benefits gained during the growing of feedstock.

In addition to CO_2 emissions from vessel operations, we also recognize the importance of non-CO_2 emissions such as black carbon, which may increase the sector's overall climate impact. However, these emissions are not currently included in our approach, as there is not yet a clear consensus on how they should be accounted for. This is also consistent with IEA's methodology for projecting Shipping sector emissions, which includes only end-use CO_2 emissions from fuel combustion, as well as with the SBTi's Maritime tool. We intend to reevaluate this approach as we deem appropriate as more information and guidance become available.

[21] ICCT (2017), Greenhouse Gas Emissions from Global Shipping 2013–2015, ICCT, United States

Metric

The emissions intensity of our Shipping sector portfolio is evaluated using the EEOI metric, which is represented in grams CO_2 per tonne-nautical mile traveled by international shipping vessels.

$$\frac{\text{Scope 1 TTW Emissions - Credits (g } CO_2\text{)}}{\text{Volume of Freight Transported (tonnes)} \times \text{Distance Traveled (nautical miles)}}$$

We considered alternative metrics such as: (i) Annual Efficiency Ratio (AER), which measures the ratio of a ship's carbon emissions per maximum capacity distance; and (ii) Energy Efficiency Existing Index (EEXI) and Energy Efficiency Design Index (EEDI), which measure the energy efficiency based on technical design specifications of in-service and new vessels, respectively. We concluded that, compared to EEOI, these alternatives do not fully capture the various levers that clients are focused on, which limits our ability to engage with them on their decarbonization goals.

Scenario and target

The benchmark trajectory for our Shipping portfolio is based on the IEA NZE scenario, which includes detailed projections of emissions and maritime activity through 2050. Despite the exclusion of passenger and domestic freight activity from our boundary, we have not made any adjustments to the scenario's emissions and activity projections as they are assessed to have a non-material impact.

Using the scenario projections, we derived a 2035 target of 4.8 g CO_2 / t-nm, which represents a 60% reduction from our 2021 baseline of 11.9 g CO_2 / t-nm.

Data sources and considerations

To calculate the carbon intensity of companies in our Shipping sector portfolio, we use a combination of company-reported EEOI data and an approach derived from IMO's data for converting g CO_2 / t-nm from company-reported data when reported in twenty-foot equivalent units (TEU) or Annual Efficiency Ratio (AER).

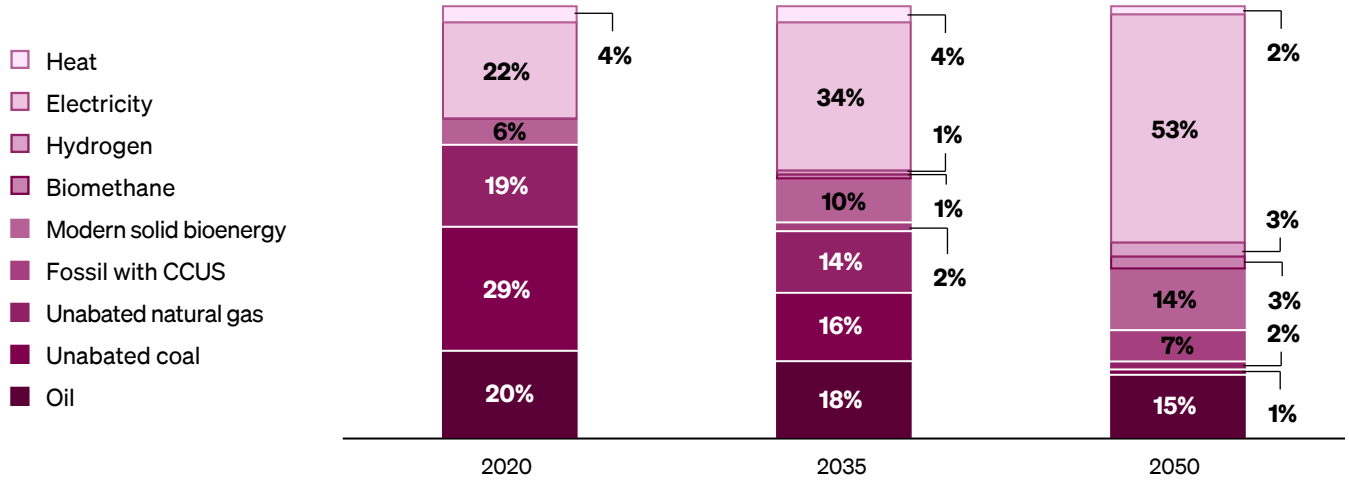
For companies that do not publicly disclose one of the above metrics and/or are not covered by TPI, we source emissions data from CDP, S&P Global Trucost, or company disclosures and activity data from company disclosures to estimate their carbon intensity. If certain data required for the metric calculation are unavailable, we use a conservative proxy value equivalent to the 75th percentile of the available data for other portfolio companies.

Industry carbon intensity targets

JPMorganChase's industry carbon intensity targets cover Iron & Steel, Cement and Aluminum, reflecting emissions-intensive industrial activities with distinct production processes and decarbonization pathways[22].

In the IEA's latest NZE scenario, industrial decarbonization through 2035 requires greater energy and material efficiency, increased electrification and recycling, and the progressive deployment of near-zero emissions production technologies. The latest pathway reflects recent trends in the pace of technology deployment, including slower-than-expected adoption of carbon capture and low-carbon hydrogen, while continuing to require a significant scale-up of these technologies through 2035 to meet the NZE scenario. The relative importance of these levers differs across industrial sectors, which would see carbon capture and low-carbon hydrogen playing a growing role in addressing emissions that are more challenging to abate through efficiency and electrification alone. The pace and mix of solutions also vary by region, reflecting differences in production processes, existing assets, access to low-emissions energy and infrastructure, and market conditions.

Industry sector final consumption in the IEA NZE scenario



Source: IEA World Energy Outlook

Note: 2020 data is sourced from IEA Net Zero by 2050, published in May 2021. 2035 and 2050 projections represent the IEA NZE scenario and are sourced from World Energy Outlook 2025, published in November 2025.

[22] Our Iron & Steel and Cement targets are informed by the IEA 2025 NZE scenario, while our Aluminum target is informed by the International Aluminium Institute 1.5-Degree Scenario, which is aligned with and informed by the IEA 2021 NZE scenario.

Iron & Steel

The Iron & Steel sector is responsible for approximately 6% of global GHG emissions, making it the highest-emitting of the heavy industry sectors[23]. This is mostly due to its reliance on metallurgical coal, which is converted into coke and used to generate heat and strip oxygen from the iron ore. The industry is considered hard-to-abate given the climate challenge associated with the likelihood of continued growth in global steel demand — driven in part by infrastructure needs related to the wider low-carbon transition — and the overall capital intensity and long useful life of its existing production assets.

Decarbonization pathways for the sector include electrification, increasing scrap recycling, using lower-carbon energy inputs such as biomass or hydrogen, and deploying CCS/CCUS technologies to reduce direct CO_2 emissions. In particular, modifying or replacing the traditional blast furnace / basic oxygen furnace (BF-BOF) production route is necessary to reduce dependence on coal and enable the use of other sources of energy. Lower-carbon alternatives that are currently available include biomass-based BF-BOF, electric arc furnace (EAF) and/or natural gas-based direct-reduced iron (NG DRI) processes, while longer-term options, such as blue or green hydrogen-based DRI, may help drive deeper decarbonization in the future.

Although several promising technologies are on the horizon, more will need to be done to drive the scale necessary for the sector to fully align with a path to net-zero emissions by 2050.

Key decisions

Our target for the Iron & Steel sector focuses on the intensity of Scope 1 and 2 GHG emissions associated with crude steel production, in order to capture emissions and activity from both primary and secondary steelmaking processes.

Using the IEA NZE scenario, adjusted to include Scope 2 emissions from electricity consumption, we established a 2035 target of 0.842 t CO_2e / t crude steel, representing a 40% reduction from our 2020 portfolio baseline of 1.412 t CO_2e / t crude steel.

Sector portfolio target summary – Iron & Steel

Activity focus	Iron and steel manufacturing
Scope	Scope 1 and 2 CO_2e — including both energy-related and process emissions — from production of primary and secondary crude steel
Metric	t CO_2e / t crude steel
Scenario	IEA NZE, adjusted to include Scope 2 emissions
2035 target	0.842 t CO_2e / t crude steel
Data sources	CDP, S&P Global Trucost, World Steel Association (WSA), Wood Mackenzie, Global Energy Monitor Global Steel Plant Tracker, company disclosures

[23] World Resources Institute (2026), Climate Watch

Methodology detail

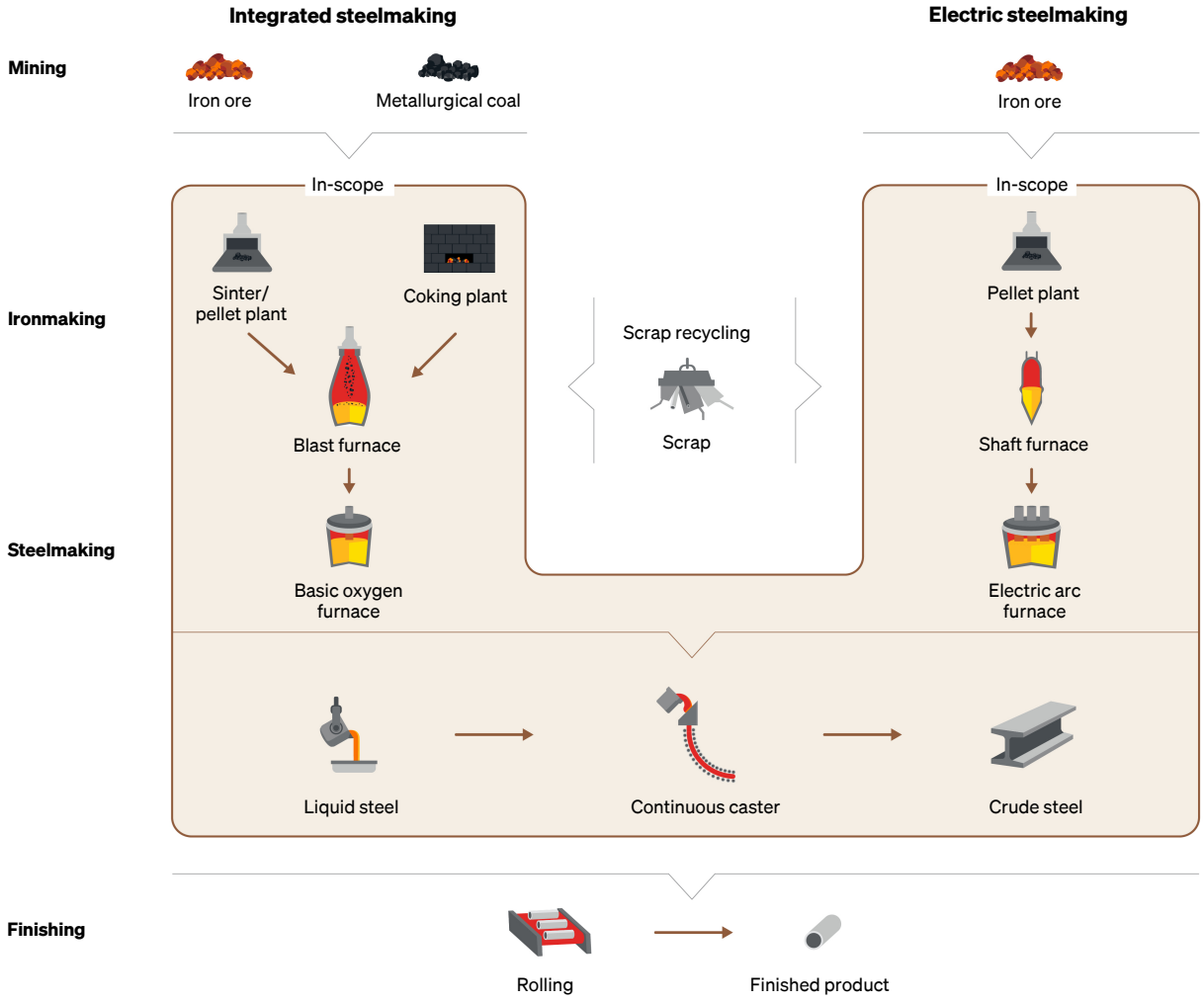
Boundaries

Our methodology for the Iron & Steel sector includes Scope 1 and 2 GHG emissions associated with the production of crude steel, which refers to steel in its first solid state, when it is cast after leaving the final furnace. Scope 1 includes direct energy-related emissions from fuel combustion (including any on-site electricity generation) and process emissions from iron ore reduction, the use of lime fluxes, ferroalloy production, carbon-containing electrodes (including consumption of graphite anodes in EAFs), and calcination of carbonates. Scope 2 includes indirect emissions from grid-purchased electricity. While electricity-related emissions have not historically been significant, they are included in recognition of the importance of EAFs to the sector's decarbonization pathway.

The activities we focus on include both primary and secondary steelmaking. This is consistent with the boundary used for the sector-specific modeling underlying IEA's NZE scenario. It is also estimated to account for the majority of total value chain emissions for the sector.

Scope 3 emissions, which are primarily driven by iron ore and fuel extraction and transport, account for a negligible portion of total emissions and are therefore excluded.

Iron & Steel sector boundary



Metric

The emissions intensity of our Iron & Steel sector portfolio is evaluated using the metric tons CO_2e per metric ton of crude steel produced.

$$\frac{\text{Scope 1 + 2 Emissions from Primary and Secondary Production - Credits (t } CO_2e)}{\text{Crude Steel Production (t)}}$$

Scenario and target

The benchmark trajectory for the sector is based on sector-specific projections of CO_2 emissions, energy use and production from the IEA NZE scenario. The IEA NZE scenario projects only Scope 1 emissions for this sector, so the scenario's energy demand inputs are used to incorporate Scope 2 emissions. Our selected metric also includes non-CO_2 emissions, reflecting common sector reporting practices, whereas IEA projections cover CO_2 emissions only. As non-CO_2 emissions represent a relatively small share of the sector's emissions, no further adjustments to the IEA trajectory were made.

This target is derived using a rate-of-change approach, an update from our prior methodology. Previously, we set the target by converging to the scenario's 2050 sector emissions projection and interpolating the implied 2030 carbon intensity. Under the revised approach, we apply the same percentage decline from the baseline year to the target year as the IEA assumes. This update improves methodological consistency and alignment in how we set targets across sectors. This results in a 2035 target of 0.842 t CO_2e / t crude steel, representing a 40% reduction from our 2020 portfolio baseline of 1.412 t CO_2e / t crude steel.

Data sources and considerations

To calculate the carbon intensity of companies in our Iron & Steel sector portfolio, we use Scope 1 and 2 emissions data from CDP and S&P Global Trucost and production data from CDP, the World Steel Association (WSA) and Wood Mackenzie. Where production data is unavailable, we use capacity data sourced from the Global Energy Monitor Global Steel Plant Tracker to derive an estimate of annual production. If emissions data is unavailable, we calculate estimates using average utilization and emissions factors for the company's capacity of each of the major production routes (BF-BOF, scrap-EAF and NG DRI-EAF). If none of these methods are available, we use a conservative proxy value equivalent to the 75th percentile of the available data for other portfolio companies.

Moving forward, we intend to continue to monitor developments in the availability of data — especially those relevant to the evolving composition of our portfolio and the further development of sector decarbonization strategies — and consider updates to our methodology as we deem appropriate.

Cement

The Cement sector is responsible for approximately 3% of global GHG emissions[24]. Cement production is generally considered hard-to-abate due to emissions not only from energy consumption but also from the chemical process of calcination, an essential step in cement production that directly releases substantial quantities of CO_2.

Abatement strategies for the sector therefore include efforts to reduce reliance on clinker (the processed material that results from calcination) by using supplementary cementitious materials (SCMs) and other cement substitutes that partially replace cement to reduce its concentration in concrete products. Replacing the use of fossil fuels to generate process heat is also a key lever for reducing emissions, with possibilities including the use of alternative fuels or electrification at different stages of the production process. However, these strategies alone will not be sufficient to align the sector with a path to achieving net-zero emissions by 2050, so there is expected to be a long-term role for CCS/CCUS technologies, as well as efforts to reduce future demand, such as prolonging the life of buildings and infrastructure and scaling the use of alternative building materials and techniques.

The complexity and scale of many of these changes will necessitate work across the industry, supportive policy and long-term capital investments, particularly in emerging economies where the majority of future demand and production are expected to be concentrated.

Key decisions

To assess net-zero alignment of our Cement sector portfolio, we evaluate the intensity of Scope 1 and 2 GHG emissions from cement manufacturing. We calculate intensity using the production metric of cementitious product, as this captures both the primary driver of emissions (clinker production) and potential levers for reducing them, including the use of SCMs and other cement substitutes.

The benchmark trajectory was obtained from the sector-specific emissions and activity pathways in the IEA NZE scenario. From this we derived a 2035 target of 399.2 kg CO_2e / t cementitious product, representing a 38% reduction from our 2020 portfolio baseline of 639.3 kg CO_2e / t cementitious product.

Sector portfolio target summary – Cement

Activity focus	Cement manufacturing
Scope	Scope 1 and 2 CO_2e — including both process and energy-related emissions — from production of cement
Metric	kg CO_2e / t cementitious product
Scenario	IEA NZE, adjusted to include Scope 2 emissions and align with use of cementitious product metric
2035 target	399.2 kg CO_2e/ t cementitious product
Data sources	CDP, S&P Global Trucost, company disclosures

[24] World Resources Institute (2026), Climate Watch

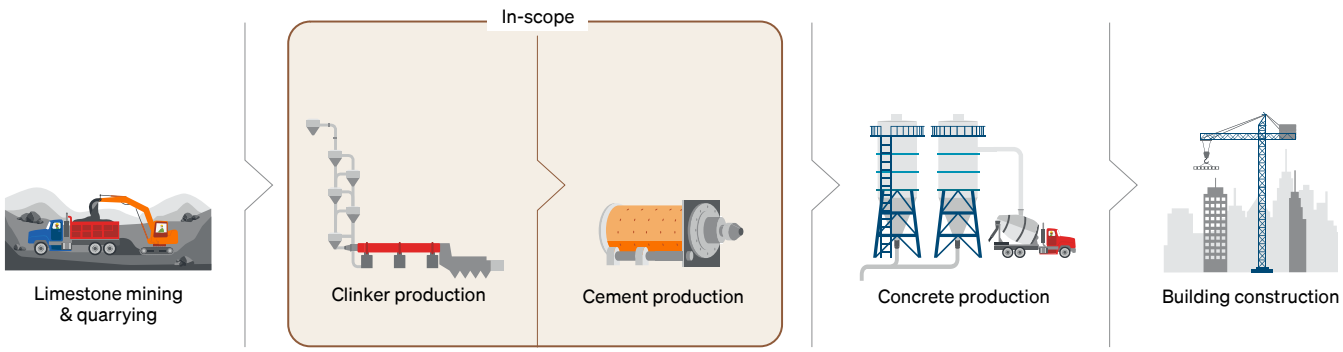
Methodology detail

Boundaries

The Cement sector methodology includes Scope 1 and 2 CO_2e emissions associated with manufacturing of cementitious product. Cementitious product refers to all clinker produced by the client company for the purposes of making cement or direct clinker sale, plus gypsum, limestone, cement kiln dust, all clinker substitutes consumed for blending and all cement substitutes, and excluding clinker bought from third parties.

Scope 1 includes emissions from both the combustion of fuels and the decomposition of limestone in the clinker production process. Scope 2 includes emissions associated with electricity purchased for production uses, such as for cement grinders or other equipment. Together, these account for approximately 96% of total lifecycle emissions for the sector. While Scope 2 emissions are relatively small in comparison to Scope 1, we include them for several reasons: (i) they are well represented in the available data and projections for the sector; (ii) many cement companies include them in their decarbonization strategies and targets; and (iii) excluding them would require complex adjustments to company emissions data, since some generate power on-site (resulting in Scope 1 emissions) while others purchase it from utilities (resulting in Scope 2 emissions).

Cement sector boundary



Scope 3 emissions from mining and quarrying, processing, transport and logistics are estimated to account for just 4% of total emissions and are therefore excluded[25]. Some companies have integrated operations, meaning that certain upstream or downstream activities may also contribute to their Scope 1 and 2 emissions. However, since these activities are not a significant driver of overall emissions, no adjustments to company emissions totals are made. Scope 3 emissions from purchased cement and clinker can be significant for some companies but are excluded due to lack of consistent reporting, and because they are already included in Scope 1 and 2 emissions of clinker producers when taking a global perspective.

[25] McKinsey & Company (2020), Laying the foundation for zero-carbon cement

Metric

The emissions intensity of our Cement sector portfolio is evaluated using kilograms CO_2e per metric ton of cementitious product produced.

$$\frac{\text{Scope 1 + 2 Emissions - Credits (kg } CO_2e)}{\text{Cementitious Product (t)}}$$

The production metric — cementitious product — refers to all clinker produced by the client company for the purposes of making cement or direct clinker sale, plus gypsum, limestone, cement kiln dust, all clinker substitutes consumed for blending and all cement substitutes, and excluding clinker bought from third parties. Use of cementitious product is specified by GHG Protocol's CO_2 Accounting and Reporting Standard for the Cement Industry and Global Cement and Concrete Association's (GCCA) Sustainability Guidelines for the monitoring and reporting of CO_2 emissions from cement manufacturing, which guide how companies report their data and are also recommended by TPI and SBTi.

Scenario and target

The benchmark trajectory for our Cement sector methodology is based on the sector-specific projections of CO_2 emissions, energy use and production volumes from the IEA NZE scenario. Since production data in the scenario is expressed as metric tons of cement rather than cementitious product, we perform a conversion using a factor derived from data compiled by GCCA[26].

Although our metric includes non-CO_2 emissions — reflecting common reporting practices — the IEA scenario data includes CO_2 emissions only. However, as non-CO_2 emissions represent a relatively small share of the sector's total emissions, no further adjustment to the IEA trajectory is required. Using the resulting trajectory, we have calculated a carbon intensity target for 2035 of 399.2 kg CO_2e / t cementitious product, representing a 38% reduction from our 2020 baseline of 639.3 kg CO_2e / t cementitious product.

Data sources and considerations

To calculate the carbon intensity of companies in our Cement sector portfolio, we use Scope 1 and 2 emissions data sourced from CDP and S&P Global Trucost and production data reported by companies. If neither cementitious nor cement production data are available, we may use as an alternative company-reported input, such as clinker production, cement capacity or clinker capacity, to derive cementitious product. If none of these methods are available, we use a conservative proxy value equivalent to the 75th percentile of the available data for other portfolio companies.

Moving forward, we intend to continue to monitor developments in the availability of data — especially those relevant to the evolving composition of our portfolio and the further development of sector decarbonization strategies — and consider updates to our methodology as we deem appropriate.

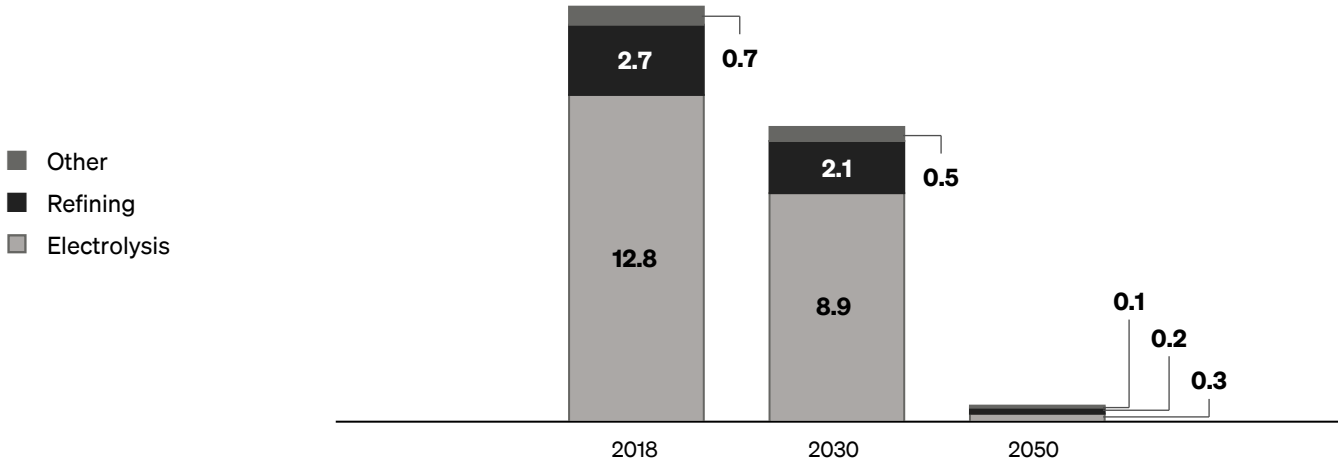
[26] GCCA (2024), GNR 2.0 – GCCA in Numbers

Aluminum

The Aluminum sector is responsible for approximately 2% of global GHG emissions, driven primarily by energy used for the aluminum smelting process[27]. Although industry-wide carbon intensity has been declining moderately in recent years, increasing production has meant that overall emissions have continued to grow. Moreover, global demand for aluminum is expected to continue growing in light of rising population and GDP, as well as its importance to overall decarbonization, for example, for lightweighting of motor vehicles or as an input to some renewable energy technologies.

Note, the Aluminum target methodology remains unchanged for now, with a 2030 target year. This is because this target is based on the IAI 1.5DS, which has not yet been updated to include a 2035 reference year; we plan to revisit the Aluminum target as we deem appropriate when the IAI publishes an updated scenario.

Global emissions intensity of primary aluminum production in the IEA NZE scenario (t CO_2e / t aluminum)

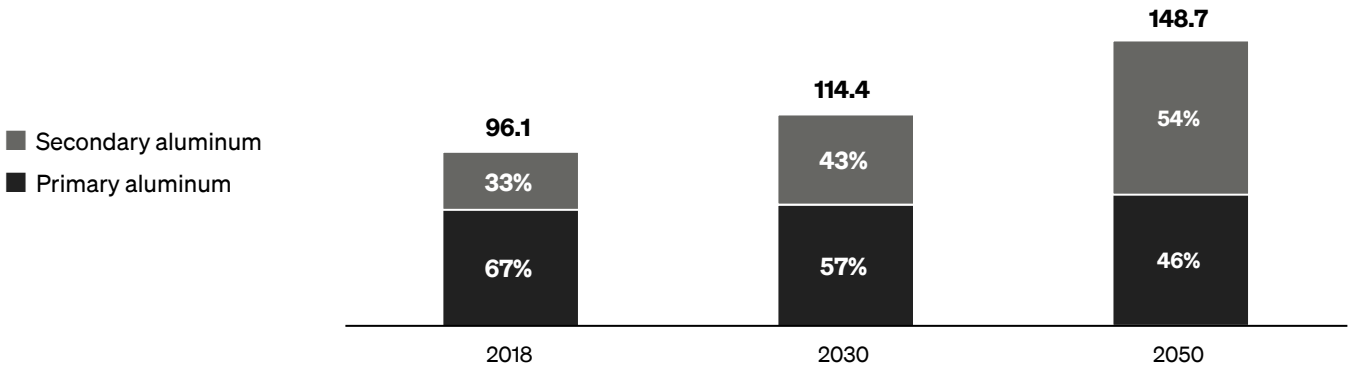


Source: International Aluminium Institute 1.5-Degree Scenario (based on IEA Net Zero by 2050 scenario), October 2021

The most promising pathways for decarbonization of the sector include increasing the proportion of secondary (or recycled) versus primary aluminum production, reducing process emissions through the use of inert anodes in primary aluminum smelting, shifting to low- or zero-carbon electricity, improving material efficiency and scaling deployment of CCS/CCUS technologies. At the same time, processes that currently rely on the direct use of fossil fuels, such as alumina refining and secondary aluminum production, can decarbonize by transitioning to alternatives such as bioenergy, hydrogen or electricity.

[27] International Aluminium Institute (IAI) (2023)

Global production of primary and secondary aluminum in the IEA NZE scenario (Mt)



Source: International Aluminium Institute 1.5-Degree Scenario (based on IEA Net Zero by 2050 Scenario), October 2021

Secondary aluminum production is important both due to aluminum's high degree of recyclability and because it is significantly less emissions-intensive than primary production. A key challenge to increasing secondary production, however, is improving the availability of scrap material for recycling. Therefore, enhancing systems for collection, recycling and sorting is also seen as a key priority for the sector.

Progress will require substantial investment in research and development and commercialization of new technologies, as well as in scaling deployment of proven solutions across the industry. Meanwhile, corresponding developments in other sectors, such as further decarbonization of the electric grid and scaling of clean hydrogen production, as well as supportive policies, will be needed to keep the Aluminum sector on track with the global goal of net zero by 2050.

Key decisions

Our target for the Aluminum sector focuses on the intensity of Scope 1 and 2 GHG emissions from key emissions-intensive activities associated with both primary and secondary aluminum production. The benchmark emissions trajectory for the sector is supplied by the International Aluminium Institute 1.5-Degree Scenario (IAI 1.5DS), which is in turn based upon the IEA 2021 NZE scenario.

To reflect our focus on primary and secondary aluminum production activities, we exclude several processes — such as bauxite mining, production of anodes and aluminum ingot casting — that the IAI has included in their boundary as these generally have minimal contribution to the sector's overall emissions. Our exclusion of emissions from fabrication scrap remelting, as well as semis and final product production, is aligned with the IAI boundary for primary and secondary aluminum.

From this we derived a 2030 target of 6.5 t CO_2e / t aluminum, representing a 22% reduction from our 2021 portfolio baseline of 8.3 t CO_2e / t aluminum. As mentioned earlier, this target remains largely unchanged in this edition. A slight modification has been made to update the baseline and associated target reduction[28].

Sector portfolio target summary – Aluminum

Activity focus	Refining and smelting of primary aluminum and production of secondary aluminum
Scope	Scope 1 and 2 CO_2e — including both CO_2 and PFC emissions — from production of primary and secondary aluminum
Metric	t CO_2e / t aluminum
Scenario	IAI 1.5DS (based on the IEA NZE scenario)
2030 target	6.5 t CO_2e / t aluminum
Data sources	CRU Aluminum Emissions Analysis Tool, company disclosures

Methodology detail

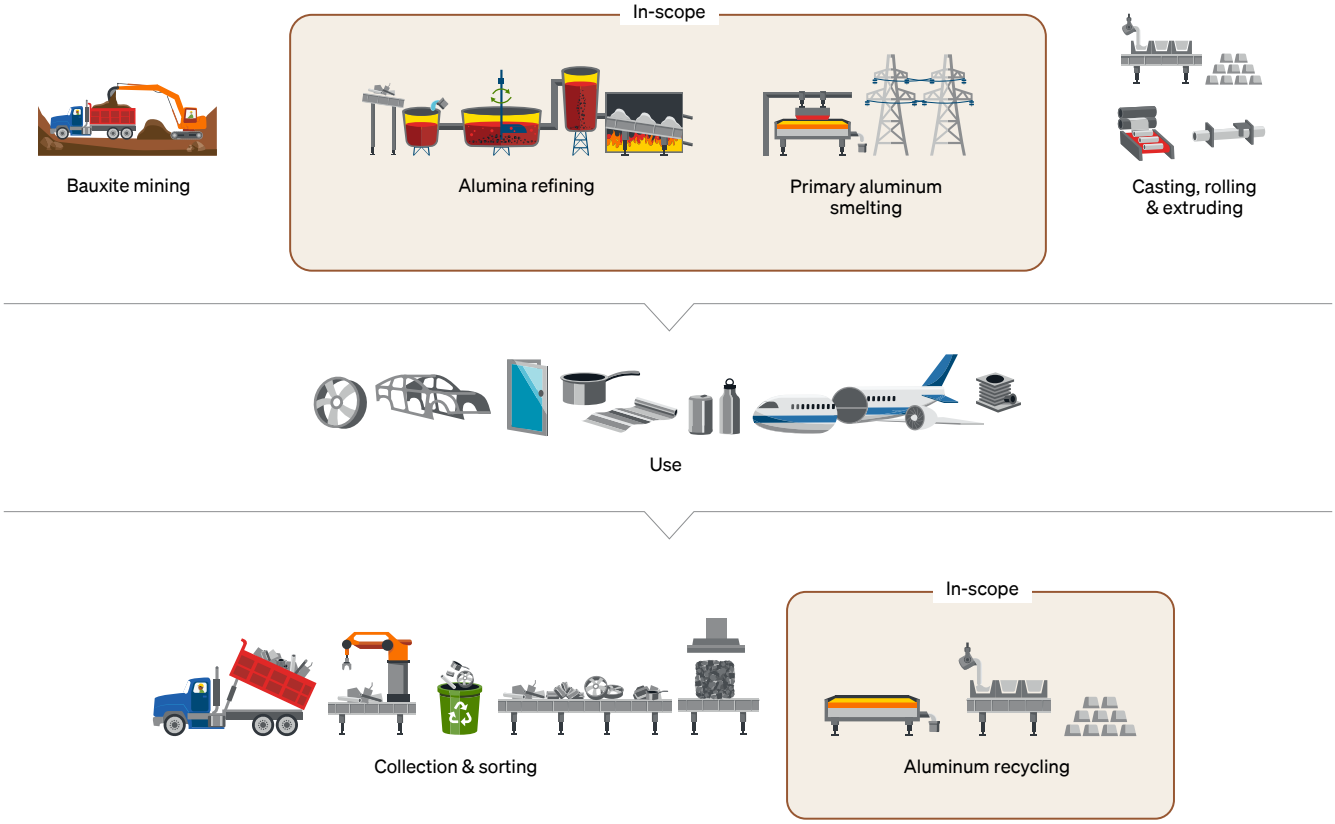
Boundaries

Our methodology for the Aluminum sector includes Scope 1 and 2 GHG emissions associated with the production of aluminum, which refers to both primary production from refining and smelting processes and secondary production from recycled input. Scope 1 includes direct energy-related emissions from fuel combustion (including any on-site electricity generation) and process emissions from the use of carbon-containing anodes in the smelting process. Scope 2 includes indirect emissions from grid-purchased electricity. Addressing electricity-related emissions — by sourcing renewable-based power — will be a significant contributor to the sector's decarbonization efforts.

The activities we focus on include both primary and secondary aluminum production. Refining of alumina, smelting of primary aluminum and recycled production of secondary aluminum are estimated to account for the majority of total value chain emissions for the sector. We exclude bauxite mining, production of anodes and aluminum ingot casting as these generally have minimal contribution to the sector's overall emissions. Our exclusion of emissions from fabrication scrap remelting as well as semis and final product production is aligned with the IAI boundary for primary and secondary aluminum.

[28] In 2025, we revised the 2021 portfolio baseline for Aluminum to 8.3 t CO_2e / t aluminum from previously disclosed 8.6 t CO_2e / t aluminum.

Aluminum sector value chain



Scope 3 emissions, which are primarily driven by emissions from the production of purchased anodes and extraction and transport of bauxite, account for a negligible portion of total emissions and are therefore excluded.

Metric

The emissions intensity of our Aluminum sector portfolio is evaluated using the metric tonnes CO_2e per metric tonne of aluminum produced.

$$\left(\text{Primary Production \% of Total}\right) \times \left(\frac{\text{Scope 1 \& 2 Emissions from Refining (t } CO_2e\text{)}}{\text{Aluminum-Equivalent Production (t)}} + \frac{\text{Scope 1 \& 2 Emissions from Smelting (t } CO_2e\text{)}}{\text{Primary Aluminum Production (t)}}\right) + \left(\text{Secondary Production \% of Total}\right) \times \frac{\text{Scope 1 \& 2 Emissions from Secondary Production (t } CO_2e\text{)}}{\text{Secondary Aluminum Production (t)}}$$

Scenario and target

The benchmark trajectory for the sector is based on sector-specific projections of CO_2 and perfluorocarbons (PFCs) emissions and production from the International Aluminium Institute's (IAI) 1.5-Degree Scenario (IAI 1.5 DS), which has been derived from the IEA 2021 NZE scenario.

Our metric also includes PFCs emissions, which are produced in the primary aluminum reduction process, due to their long atmospheric lifetimes and having one of the highest global warming potentials, as well as the sector's focus on curbing them in the near- to medium-term. This is consistent with the IAI 1.5 DS.

Using IAI's projections, we have calculated a carbon intensity target for 2030 of 6.5 t CO_2e / t aluminum, representing a 22% reduction from our 2021 baseline of 8.3 t CO_2e / t aluminum.

Data sources and considerations

To calculate the carbon intensity of companies in our Aluminum sector portfolio, we use Scope 1 and 2 emissions from refining and smelting coupled with alumina and primary aluminum production data from CRU's Aluminum Emissions Analysis Tool. For recycled production we rely on company disclosures of secondary aluminum production and the emissions generated from doing so, wherever available. If only secondary aluminum production is available but emissions are not disclosed, we assume that the carbon intensity of secondary aluminum is equivalent to 5% of the company's primary aluminum production carbon intensity. Where all necessary data is unavailable, we use a conservative proxy value equivalent to the 75th percentile of the available data for other portfolio companies.

Moving forward, we plan to continue to monitor developments in the availability of data — especially those relevant to the evolving composition of our portfolio and the further development of sector decarbonization strategies, such as secondary aluminum production — and consider updates to our methodology as we deem appropriate.

2 Absolute financed and facilitated emissions

As a complement to the emissions intensity targets we have set for key sectors in our financing portfolio, we also measure and disclose our financed and facilitated emissions on an absolute basis (i.e., absolute financed emissions) for these same sectors. Our methodology for calculating absolute financed emissions builds on international standards and guidance while also aligning with the principles and parameters set out in Carbon Compass® for our carbon intensity targets. In particular, our approach is tailored to focus on what we consider to be the most important sources of emissions for each sector to account for our exposure to a given client and to minimize distortion that may result from the effect of short-term market volatility on client valuations. We consider this approach fitting for our calculated absolute financed emission figures to correlate with real-world emissions of clients in our applicable sector portfolios.

We calculate absolute financed emissions for a given sector portfolio as follows:

$$\text{Absolute Financed Emissions} = \sum \left(\frac{\text{Financing}}{\text{Company Value}} \times \text{Client Absolute Emissions} \right)$$

The table below summarizes the specific information we use for the three elements required for the calculation — financing, company value and client absolute emissions — including how these vary based on form of financing and sector. Following this are sections with additional detail on each of these elements, as well as our approach to data quality scoring.

Financing	Lending	12-month monthly average committed financing
	Tax-oriented investments	12-month monthly average outstanding balance and recapture activity; three-year rolling average for syndications
	Capital markets	100% of the Firm's share of capital markets activity on a three-year rolling average basis
Company value	Three-year average enterprise value including cash (EVIC); if unavailable three-year average Debt + Equity	
Client absolute emissions	Energy Mix	Scope 3 CO_2 from end use of energy products
	Oil & Gas Operational	Scope 1 and 2 CO_2e from production and refining of oil, natural gas, bioenergy and other energy products
	Electric Power	Scope 1 CO_2 from fuel combustion for power generation
	Auto Manufacturing	Scope 1 and 2 CO_2e from manufacturing Scope 3 end-use tank-to-wheel CO_2e from fuel combustion
	Aviation	Scope 1 tank-to-wake CO_2 from flights
	Shipping	Scope 1 tank-to-wake CO_2 from international shipping vessel operations
	Iron & Steel	Scope 1 and 2 CO_2e — including energy-related and process emissions — from production of primary and secondary crude steel
	Cement	Scope 1 and 2 CO_2e from cement manufacturing
	Aluminum	Scope 1 and 2 CO_2e from smelting (primary production) and recycling (secondary production)

Financing

For purposes of calculating financed emissions, the amount of financing we have provided to a client includes lending, tax-oriented investments and capital markets activity, which matches our approach for our sector-specific intensity targets.

For lending, we use the 12-month monthly average balance of committed financing. We have chosen committed financing because we believe this better reflects the scope of our relationship with a given client (i.e., based on the total amount that we have agreed to finance) as opposed to outstanding balance, which may obscure differences between smaller and larger clients based on the degree to which they have drawn on available credit from us.

For tax-oriented investments, we use the 12-month monthly average of outstanding balance and recapture activity, and the three-year rolling average for syndications.

For both lending and tax-oriented investments, we use the 12-month monthly average balance rather than a year-end balance in order to better capture the impact of short-term obligations, such as bridge loans, which frequently have terms of less than one year.

For capital markets activity, also known as facilitated emissions, we use 100% attribution of our share of the transaction size (i.e., the full value of transactions facilitated in the debt and equity capital markets for in-scope clients) and include our share of transactions on a three-year rolling average basis. The choice of a three-year versus one-year rolling average helps compensate for the significant volatility often observed with capital markets transactions, driven in part by companies typically only going to the market for additional financing every few years.

Company value

For company value, we use enterprise value including cash (EVIC) sourced from financial information providers such as FactSet or S&P Global. We use a three-year rolling average of EVIC in order to control for potential distortion due to the effect of market volatility on company valuations.

If EVIC is unavailable, we use the sum of total company equity and debt as found on the company's balance sheet. In the event that equity value is negative, we treat it as zero. We use a three-year rolling average of year-end equity and debt in order to control for potential short-term variation that could otherwise distort our calculation of absolute financed emissions.

For a small number of companies in our portfolio, EVIC or equity and debt may be unavailable. In these cases, we estimate absolute financed emissions using an asset-based emissions factor. For more information, see the 'Data waterfall approach' section below.

Client emissions

For consistency, we include client absolute emissions within the same scopes and boundaries as we have defined for each of our carbon intensity targets, as summarized in the table below. For additional detail, see the relevant portion of the methodologies for our sector-specific emissions intensity reduction targets in Chapter One.

SECTOR	ACTIVITY FOCUS	SCOPE(S)	DATA SOURCE
Energy Mix	Supply of oil, natural gas and low-carbon fuels for end-use combustion, and zero-carbon power generation by Oil & Gas and Electric Power companies	Scope 3 CO_2 emissions from end use of energy products	Wood Mackenzie, Enverus, S&P Global Trucost, S&P Global SNL Financial, company disclosures
Oil & Gas Operational	Production and refining of oil, natural gas, bioenergy and other energy products	Scope 1 and 2 CO_2e — including both CO_2 and methane emissions	Wood Mackenzie, company disclosures
Electric Power	Power generation	Scope 1 CO_2 emissions from fuel combustion for power generation	S&P Global Trucost, S&P Global SNL Financial, company disclosures
Auto Manufacturing	Manufacturing of global passenger cars and U.S. light trucks	Scope 1 and 2 CO_2e emissions from manufacturing Scope 3 end-use tank-to-wheel emissions from fuel combustion, based on the Worldwide Harmonized Light Vehicles Test Procedure (WLTP)	Transition Pathway Initiative (TPI), National Highway Traffic Safety Administration (NHTSA), S&P Global Market Intelligence, S&P Global Trucost, company disclosures
Aviation	Scheduled passenger service and belly freight by airline companies	Scope 1 tank-to-wake (TTW) CO_2 emissions from flights	Platform for Analyzing Carbon Emissions (PACE), company disclosures
Shipping	International maritime freight transportation	Scope 1 tank-to-wake (TTW) CO_2 emissions from vessels	TPI, CDP, S&P Global Trucost, company disclosures
Iron & Steel	Iron and steel manufacturing	Scope 1 and 2 CO_2e — including both energy-related and process emissions — from production of primary and secondary crude steel	CDP, S&P Global Trucost, company disclosures
Cement	Cement manufacturing	Scope 1 and 2 CO_2e	CDP, S&P Global Trucost, company disclosures
Aluminum	Refining and smelting of primary aluminum and production of secondary aluminum	Scope 1 and 2 CO_2e — including both CO_2 and PFC emissions	CRU Aluminum Emissions Analysis Tool, company disclosures

Data waterfall approach

As noted above, we calculate absolute financed emissions based on total financing we have provided, company value and client absolute emissions, as follows:

$$\text{Absolute Financed Emissions} = \sum \left(\frac{\text{Financing}}{\text{Company Value}} \times \text{Client Absolute Emissions} \right)$$

In the event that suitable emissions data and/or company value are unavailable, we apply a data waterfall approach enabling the reasonable estimation of absolute financed emissions. If company value is known but emissions are not, we estimate emissions using last twelve months (LTM) revenue multiplied by an appropriate environmentally extended input-output (EEIO) emissions factor, as follows:

$$\text{Absolute Financed Emissions} = \sum \left(\frac{\text{Financing}}{\text{Company Value}} \times \text{LTM Revenue} \times \text{Revenue Emissions Factor} \right)$$

For companies for which EVIC or equity and debt are not known, we estimate absolute financed emissions by multiplying our financing to the client by a total assets emissions factor based on the median of other companies in our portfolio.

$$\text{Absolute Financed Emissions} = \sum (\text{Financing} \times \text{Total Assets Emissions Factor})$$

Data quality scoring

When calculating absolute financed emissions for a sector portfolio, we assign a data quality score for each client depending on the data and method used to determine absolute emissions for that client. We then calculate and report a weighted average data quality score based on the financing provided to each client relative to our total financing to the sector.

The table below summarizes how scores are assigned depending on the quality of data available for each client, with 1 representing highest quality and 5 representing lowest quality. This is consistent with the data quality scoring methodology recommended by the Partnership for Carbon Accounting Financials (PCAF). We then calculate and report a weighted average data quality score for each sector based on the financing provided to each client relative to our total financing to the sector.

Data quality scoring table

DATA QUALITY SCORE	CLIENT DATA AVAILABILITY		APPROACH TO DETERMINE ABSOLUTE FINANCED EMISSIONS
	Company value	Client emissions	
1	✓	✓	Company-reported emissions with verification, divided by company value
2			Company-reported emissions, divided by company value
3	✓	✗	Emissions modeled or estimated using physical activity or capacity data, multiplied by appropriate emissions factors, divided by company value
4			Emissions estimated using company revenue multiplied by appropriate revenue emissions factor, divided by company value
5	✗	✗	Financing multiplied by total asset emissions factor based on median of other companies in portfolio

Assigning data quality scores helps us to understand the accuracy of the data used to calculate our absolute financed emissions, and to consider strategies for improving data quality over time. Reporting data quality scores helps us increase transparency and accountability. In select sectors, such as Oil & Gas Operational and Aviation, data quality score will have an upper limit of 3 out of 5 as we rely on modeled emissions data for our calculations. We aim to use the highest quality data available.

3 Energy Supply Financing Ratio

This chapter provides details of the methodology we use for calculating our Energy Supply Financing Ratio (ESFR). The ESFR is an example of a climate-related disclosure metric that compares the amount of a bank's financing across a calendar year — including direct financing provided through balance sheet lending, tax-oriented investments and facilitation of capital markets activity — supporting low-carbon-intensive and zero-carbon (referred to as "Low-Carbon") energy supply versus that supporting high-carbon-intensive and unabated fossil-based (referred to as "High-Carbon") energy supply. While this disclosure metric can provide more insight into the capital that we are providing, our business decisions are made independently on the basis of commercial considerations, and we do not restrict or otherwise align our financing to meet a specific target for this ratio.

Although there have been external efforts to develop and use financing ratios to broadly characterize energy-related financing activity in our industry, we believe designing, measuring and disclosing a Firm-specific financing ratio has several advantages. By utilizing internal data on the specifics of financing activities, which may not be available to data vendors, we can provide more granular insight into the categorization of our financing as Low-Carbon and High-Carbon. Furthermore, by customizing key aspects of the design, such as taking a forward-looking and investment-focused approach, we can provide more insight into how the financing we provide is being used toward investments in Low-Carbon energy supply. In developing the ESFR, we focused on the following key principles:

- **Investment-focused:** The primary objective of the ESFR is to provide insight into the relative flow of capital supporting investments in Low-Carbon versus High-Carbon energy supply. To achieve this, we have designed our methodology to: (i) rely on forward-looking investment-related information to estimate how our financing is apportioned between Low-Carbon and High-Carbon investments; and (ii) approximate the amount of our financing that supports investments in energy supply and exclude financing that is used for other corporate purposes.
- **Robust and consistent data:** Our calculations rely on the use of a combination of internal and external data sources. This includes detailed internal information on financing transactions and subsidiary/corporate structure information, as well as well-reported and standardized data from reputable external sources.
- **Insightful:** A well-designed ESFR should have informational value for both internal and external stakeholders. For example, through careful selection of boundaries for included sectors and financing instruments, we have sought to align the ESFR with the nature of our energy-related financing business.
- **Transparent:** We disclose relevant details of the ESFR methodology approach, intending to be clear and understandable to interested stakeholders. We may make enhancements over time as a result of evolutions in our strategy, metrics, targets, and frameworks; availability of new data; industry best practices; stakeholder feedback; or other external factors.

The ESFR disclosure can provide insight into capital formation in the real economy, but it also has limitations. First, it is a disclosure metric, not a mechanism to drive energy transition. Banks operate in competitive markets and do not control the absolute or relative level of financing opportunities available for energy supply. Rather, the energy transition is driven by a range of factors largely outside of an individual bank's control, including the implementation of policy mechanisms, technological advancements, market demands and changing consumer preferences. Second, while this metric can provide further insight into financing we are providing, it is not a direct proxy for decarbonization activity happening in the economy, or for total energy supply investment dollars. Financing provided by banks only reflects a portion of the total capital being deployed by companies engaged in the supply of energy to power the global economy. Capital provided through companies' retained earnings, state and federal governments, venture capitalists and private equity firms also plays a key role in supporting the investment needs of energy supply sectors.

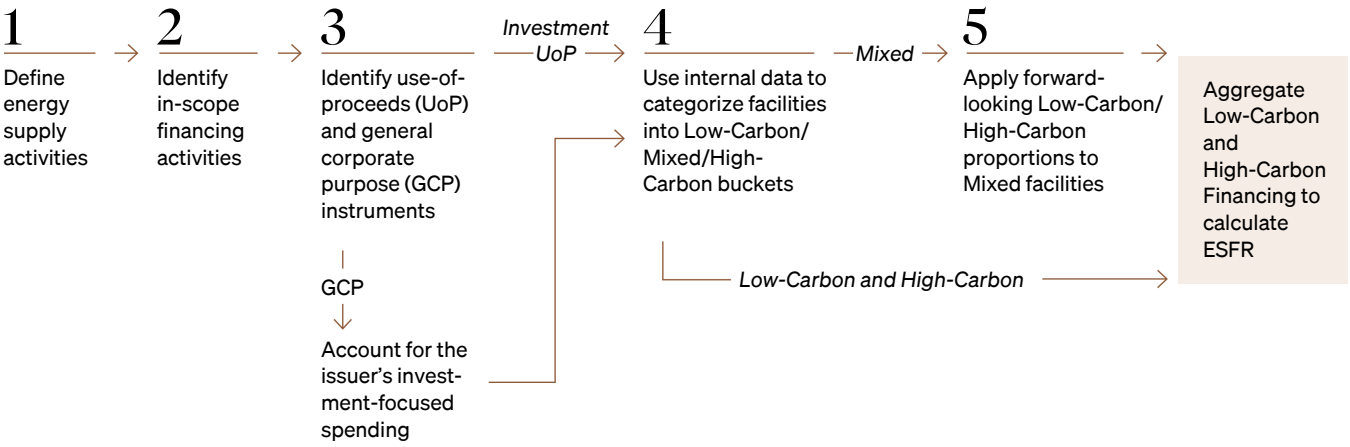
We aim to support clients working toward the energy transition while recognizing the need to continue supporting traditional energy sector clients to help their decarbonization efforts and promote global energy security, availability, affordability and accessibility. The ESFR also depends on our clients' investment decisions and their ability to originate viable low-carbon projects we can finance, subject to commercial considerations. We are focused on helping our clients achieve their business objectives, including their efforts to responsibly reduce their emissions today and diversify their use of different energy sources over time.

Overview of our approach

The design process included the following steps:

1. Selecting an appropriate boundary for energy supply sectors and determining which activities are classified as Low-Carbon or High-Carbon;
2. Identifying financing activities to include;
3. Isolating the share of financing most directly associated with the investments companies are making;
4. Classifying financing instruments based on the activity(ies) they support (Low-Carbon, High-Carbon or Mixed, which requires us to apportion our financing into the Low-Carbon and High-Carbon categories); and
5. Developing a forward-looking method for allocating Mixed financing between Low-Carbon and High-Carbon investments.

ESFR process diagram



Our approach leverages a combination of internal and external data, helping us to include relevant financing, identify the investment-focused portion of financing and allocate shares of Mixed financing facilities to either the Low-Carbon or High-Carbon portions of the ratio.

The table below provides a summary of key elements of the design of the ESFR. For additional details on each component, see the 'Methodology detail' section below.

		DESIGN CHOICE	NOTES
ENERGY SUPPLY BOUNDARY DEFINITION	**Low-Carbon energy supply**	Zero- and low-carbon power generation Low-carbon fuels Carbon capture, use and storage (CCUS) Electricity networks Energy storage	Consistent with boundary used in the International Energy Agency's (IEA) World Energy Investment analysis[29]
	High-Carbon energy supply	Oil & Gas (O&G) upstream, midstream and refining (including integrateds) Coal mining and transportation Coal-, oil- and natural-gas-based power generation	
SCOPE OF FINANCING ACTIVITIES	**Lending products**	Syndicated lending[30]	Includes the Firm's share of these financing and facilitation activities during the calendar year (CY) for which the ratio is being calculated[31]
		Bilateral lending Project finance Green loans	
	Capital markets	Debt underwriting Green bond Equity underwriting Private capital underwriting	
	Investment type	Tax-oriented investments	
INVESTMENT-FOCUSED PORTION OF FINANCING	**Low-Carbon investments / use-of-proceeds (UoP) financing**	Tax-oriented investments, green bonds and green loans are treated as investment-specific financing and credited to the ratio as 100% Low-Carbon	These financings can be tied directly to capital investment in energy supply activities
	Project financing	Project financing is treated as investment-specific financing and either 100% Low-Carbon or 100% High-Carbon based on the underlying asset	
	General corporate purpose (GCP) financing	For GCP instruments, we only include pro-rata share of the company's overall capital spending that was allocated toward capital expenditure (capex) and cash-based mergers and acquisition (M&A) activity during the CY	We estimate the investment-related portion of financing, given that not all proceeds raised are allocated exclusively to making investments
LOW-CARBON/ HIGH-CARBON ALLOCATION APPROACH	**Low-Carbon/ High-Carbon bucketing**	North America Industry Classification System (NAICS) codes determine which lending facilities should be treated as 100% Low-Carbon or 100% High-Carbon	We leverage internally available information on the issuer and UoP to bucket facilities If financing is provided directly to a subsidiary solely focused on one or more energy supply activities, it is included in its entirety as either 100% Low-Carbon or 100% High-Carbon
	Mixed bucketing	Mixed facilities include: (i) lending facilities without a clear investment-focused UoP; and (ii) all facilitation activity, excluding green bonds. The issuer's capex and assets under development are used to determine the Low-Carbon % / High-Carbon % split to be applied to our financing	We leverage external data to estimate the proportion of our financing that is reflective of issuers' Low-Carbon and High-Carbon energy supply activities This is especially relevant for financing provided to power companies with zero- or low-carbon and fossil-based generation, integrated O&G companies, diversified companies, conglomerates and holding companies

29 IEA World Energy Investment 2024
30 Represents retained credit exposure from loan syndications.
31 New originations and refinancings between Jan. 1 and Dec. 31 of the calendar year.

Methodology detail

This section provides a detailed discussion of key elements of our approach, including their underlying rationale and impact on the ESFR. Our aim is to provide further insight into how we have constructed the ESFR and to provide an insightful metric for our stakeholders, which aims to reflect how our financing relates to the investments made by clients engaged in energy supply activities.

Energy supply boundary definition

In establishing the exposure boundary for the ESFR, we considered what parts of the energy system should be included. We are involved in financing a wide variety of energy-related activities that are relevant to maintaining the affordability and security of the existing energy supply as well as enabling the transition to lower-carbon sources.

		CATEGORY	ACTIVITY	NOTES
ENERGY SUPPLY BOUNDARY DEFINITION	Low-Carbon energy supply	Low- and Zero-Carbon power generation	Solar (photovoltaic, concentrated solar power, solar thermal)	Consistent with boundary used in IEA's World Energy Investment analysis[32]
			Wind (onshore and offshore)	
			Geothermal	
			Hydropower	
			Marine	
			Nuclear	
			Bioenergy	
			Fossil-fuel power with CCUS	
		Electricity networks[33]	Transmission and distribution	
			Public EV chargers	
		Energy storage	Utility-scale and buildings	
		Low-Carbon fuels	Biogases	
			Liquid biofuels	
			Hydrogen production	
		CCUS	CO_2 capture, transport, storage and utilization	
	High-Carbon energy supply	Oil & Gas	Upstream (exploration and production)	
			Midstream (pipelines and LNG)	
			Refining	
		Fossil-based power generation	Coal-fired power	
			Gas-fired power	
			Oil-fired power	
		Coal supply	Coal mining	
			Coal transportation	

32 IEA World Energy Investment 2024

33 Electricity networks are technology-agnostic and may support transmission and distribution of electricity from both low- and high-carbon-intensive energy sources. They are included based on their role in enabling the connection and delivery of cleaner, reliable energy, and strengthening the resilience of electric power systems.

Within the Low-Carbon energy supply sector, we include all low- and zero-carbon power generation (e.g., solar, wind, geothermal, nuclear, abated fossil-based generation); biofuels; hydrogen production; CCUS; energy storage; and electricity networks. Within the High-Carbon energy supply sector, we include unabated coal-, oil- and natural-gas-based power generation; Oil & Gas upstream, midstream and refining; and coal mining and transportation. This boundary is consistent with that used by IEA's annual World Energy Investment report. Excluded from our boundary (and IEA's) are energy-efficiency and end-use sectors (e.g., buildings and industry, transport), as our focus is only on energy supply activities.

Other activities such as energy-related manufacturing (e.g., wind turbines, batteries, power generation equipment, oilfield chemicals) were considered but ultimately excluded in favor of a supply-focused approach. A key consideration is that energy-related manufacturing and supply chain activities can be complex, and poor data availability would make it difficult to determine how they contribute to energy supply. We intend to continue to monitor developments in data availability and consider revisiting these choices in the future as we deem appropriate.

Scope of financing activities

To calculate the ESFR, we include lending, tax-oriented equity and capital markets (i.e., "facilitated") activity, as this approach encompasses all financing activity through which we meaningfully support the energy supply. One challenge with industry-wide or generic financing ratios is the potential for undercounting relevant financing, as commonly available data sources do not capture non-public activities. By calculating a Firm-specific ratio, we have the ability to include relevant non-public financing activities and instruments, including bilateral loans and capital markets activity.

		DESIGN CHOICE	NOTES
SCOPE OF FINANCING ACTIVITIES	**Lending products**	Syndicated lending[34] Bilateral lending Project finance Green loans	Includes the Firm's share of these financing and facilitation activities during a CY for which the ratio is being calculated[35]
	Facilitation activity	Debt underwriting Green bonds Equity underwriting Private capital underwriting	
	Investment type	Tax-oriented investments	

For lending, the ESFR captures newly originated facilities as well as those refinanced during the calendar year for which the ratio is being measured. We include these facilities on a committed basis rather than just outstanding balances to better reflect the total amount of capital made available to clients for investments. Our in-scope lending portfolio also includes all GCP instruments, including revolving credit facilities and asset-based lending facilities, as these also contribute to the total pool of capital available to companies for investments. For facilitated activity, we use 100% attribution of our share of the transaction size for deals originated during the calendar year for which the ratio is being measured. Lastly, our financing includes the tax-oriented investments we provide as well as the portion we syndicate to other investors. Tax-oriented investments enhance the economics of renewable energy projects and are part of how we support investment in new renewable energy supply.

[34] Represents retained credit exposure from loan syndications.
[35] New originations and refinancings between Jan. 1 and Dec. 31 of the calendar year.

Investment-focused portion of financing

A key feature of our approach is our focus on isolating the share of our financing activities that support real-world investment in energy supply. This requires treating different forms of financing differently based on whether they are inherently investment-focused or can be used for multiple purposes.

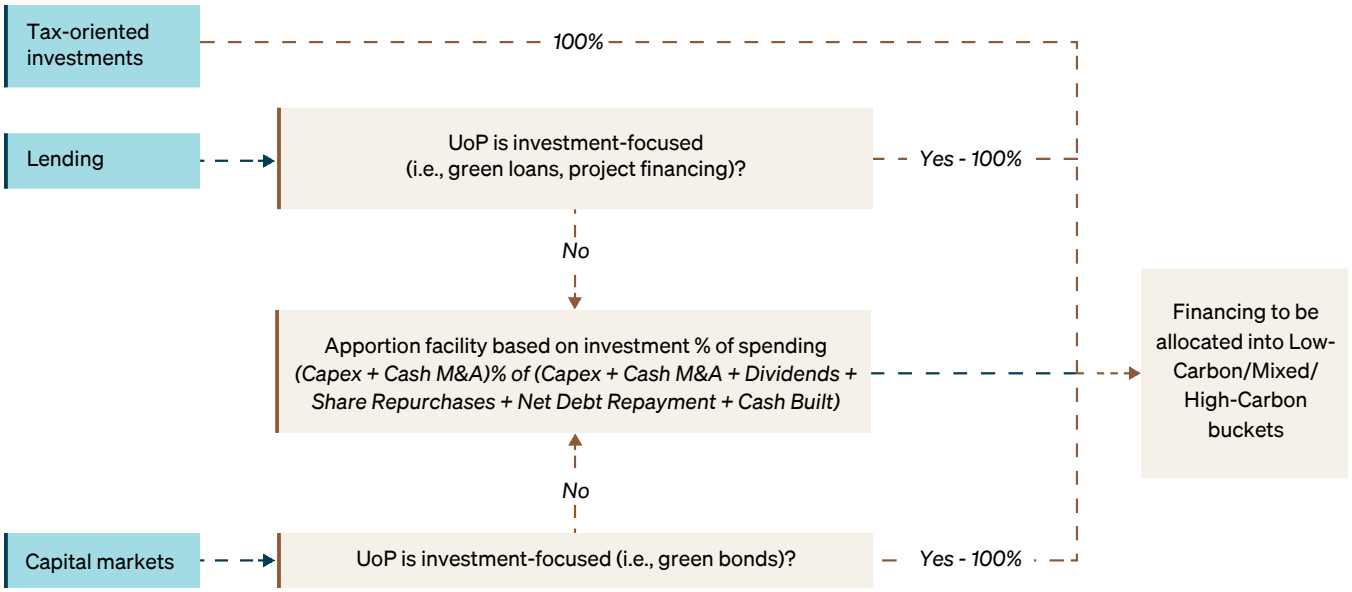
		DESIGN CHOICE	NOTES
INVESTMENT-FOCUSED PORTION OF FINANCING	**Low-Carbon investment / UoP financing**	Tax-oriented investments, green bonds and green loans are treated as investment-specific financing and credited to the ratio as 100% Low-Carbon	These financing activities can be tied directly to capital investment in energy supply activities
	Project financing	Project financing is treated as investment-specific financing and either 100% Low-Carbon or 100% High-Carbon based on the underlying asset	
	GCP financing	For GCP instruments, we only include pro-rata share of the company's overall capital spending that was allocated toward capex and cash-based M&A activity during the year in focus	We estimate the investment-related portion of financing, given that not all proceeds raised are allocated exclusively toward investments

Tax-oriented investments, green bonds and green loans are treated as investment-specific financing and allocated as 100% Low-Carbon. Green-labeled products can be used for a variety of projects and purposes beyond just energy supply activities. To account for this, we assume an even split of the Firm's share of the deal value by listed UoP subcategories and only include the energy-supply-related portion. Project financing is also treated as investment-specific financing and allocated as either 100% Low-Carbon or 100% High-Carbon based on the underlying asset.

In contrast, GCP lending and general traditional capital markets activity can be put to a variety of uses, so they do not on their own provide an accurate picture of investment-related financing. Simply excluding these instruments would significantly understate the total financing we provide in support of energy supply. Conversely, including them in their entirety would overstate their impact on such investment. We therefore seek to account for only the investment share of such facilities, as we believe that the ESFR should provide insight into the relative flow of capital supporting real-world investment in Low-Carbon and High-Carbon energy supply.

To do so, we assume that the external GCP financing raised by companies and the cash they generate from operations are proportionally credited in line with their capital spending, including capital spent on investment activities. Using a combination of third-party (e.g., FactSet, S&P Capital IQ), internal and company-reported data, we tabulate how each issuer has deployed capital in three general ways: investment (capex and cash M&A), payout (dividend payments and share repurchases) and balance sheet management (net debt repayment and building cash on the balance sheet). We then scale our share of financing based on the investment share of each issuer's overall capital spending.

Investment-focused financing calculation



These calculations are done on a company-by-company basis. Where financial information is not available, we use the median of investment share for other companies included in the ESFR from the same subsector as a proxy.

By design, the investment-focused approach aims to include a larger proportion of our GCP financing in the ratio when companies invest a larger share of their capital. This reflects our view that giving $1 of GCP financing to a company more focused on investing activities should have a greater effect on the ESFR than when that $1 is given to a company with a broader set of capital spending priorities, irrespective of whether the financing is counted toward the numerator or the denominator.

Low-Carbon/High-Carbon allocation approach

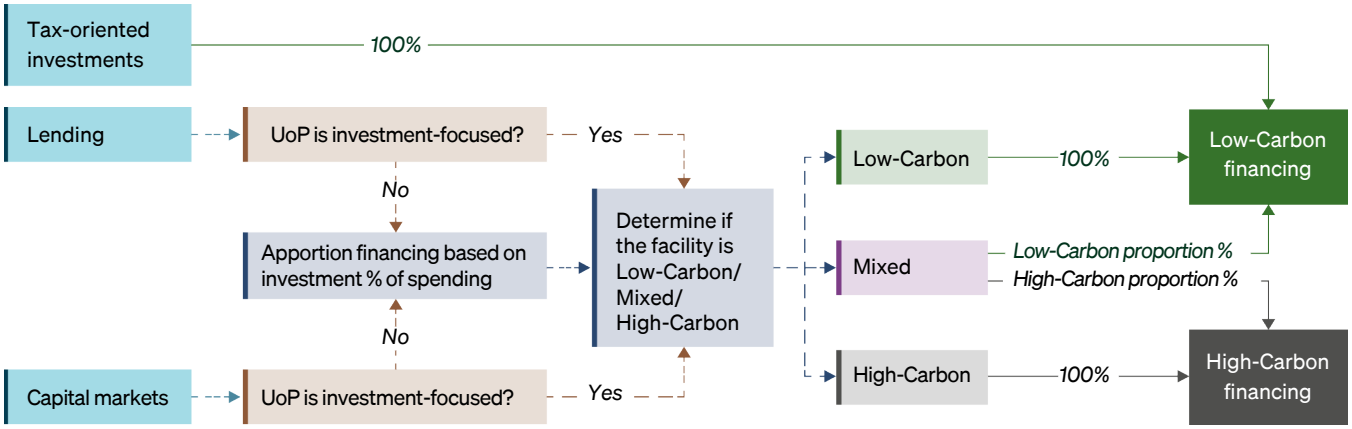
To allocate in-scope financing to either the numerator (Low-Carbon) or denominator (High-Carbon) of the ESFR, we use a combination of internal and external data. For companies we finance that are only engaged in either Low-Carbon or High-Carbon energy supply activities, we are able to directly allocate financing to one of these buckets. For companies that are involved in both Low-Carbon and High-Carbon energy supply sectors, we use forward-looking external data to apportion our financing into the relevant buckets of the ESFR.

		DESIGN CHOICE	NOTES
LOW-CARBON/ HIGH-CARBON ALLOCATION APPROACH	**Low-Carbon/High-Carbon bucketing**	NAICS codes determine which lending facilities should be treated as 100% Low-Carbon or 100% High-Carbon	We leverage internally available information on the issuer and UoP to bucket If financing is provided directly to a subsidiary solely focused on one or more energy supply activities, it is included in its entirety as either 100% Low-Carbon or 100% High-Carbon
	Mixed bucketing	Lending facilities without a clear investment-focused UoP and all facilitation activities (excluding green bonds) are treated as Mixed facilities. The issuer's capex and assets under development are used to determine the Low-Carbon % / High-Carbon % split to be applied to our financing	We leverage external data to estimate the proportion of our financing that is reflective of issuers' Low-Carbon and High-Carbon energy supply activities This is especially relevant for financing provided to power companies with zero- or low-carbon and fossil-based generation, integrated O&G companies, diversified companies, conglomerates and holding companies

With this calculation, our access to detailed internal data allows for improvement in the accuracy of the allocations into Low-Carbon and High-Carbon. An industry-wide ratio, or one calculated with higher-level publicly available data, will likely provide an incomplete picture. For example, if a borrower is a subsidiary and owner of a single Low-Carbon asset and its parent company is involved in multiple energy supply sectors, allocating the financing using the parent's involvement in energy supply activities can distort the categorization of the financing to the subsidiary (Low-Carbon, High-Carbon or Mixed). With our approach, the ability to use more granular internal data helps address this challenge.

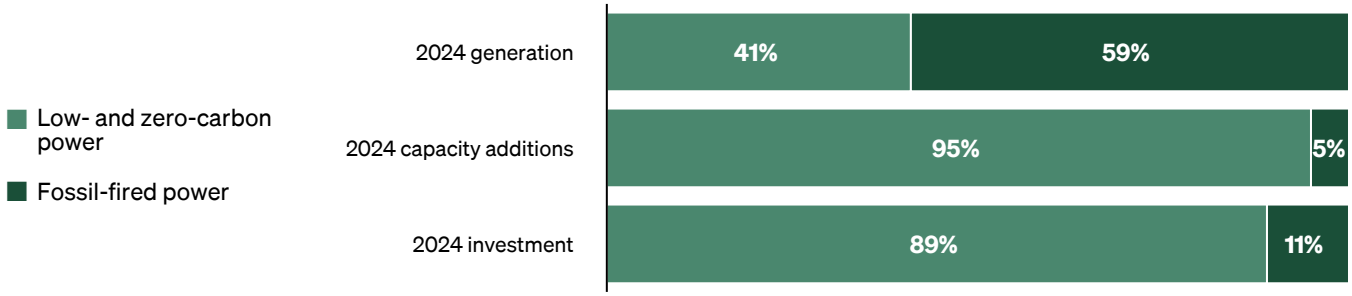
For our lending activity, we first identify those facilities that can be allocated as either 100% Low-Carbon or 100% High-Carbon, based on NAICS codes. The availability of internal issuer and certain UoP information is helpful, as it enables better estimation of financing flowing to specific activities, such as to individual subsidiaries of larger companies. Remaining lending facilities and all facilitated financing (other than green bonds) are treated as Mixed financing; this includes companies involved in both Low-Carbon and High-Carbon energy activities, as well as diversified companies, conglomerates and holding companies.

Low-Carbon/High-Carbon allocation procedure for in-scope financing



For Mixed facilities, external data is used to determine the Low-Carbon and High-Carbon proportions to be applied. Where available, we use forward-looking investment data — either through capex or assets under development — to derive these proportions as it better reflects where companies are actually making investments. This is in contrast to more widely used approaches that predominantly rely on backward-looking revenue data or existing fleet of assets.

Global power sector generation, capacity additions and investment activity



Source: IEA World Energy Outlook (WEO) 2025; IEA World Energy Investment 2025

Note: Low- and zero-carbon power includes renewables, nuclear, fossil fuels with CCUS and other low- and zero-carbon sources. Fossil-fired power includes unabated coal, unabated gas, unabated oil and other fossil fuels without CCUS.

The example of the power sector helps to illustrate the difference between these approaches. Looking to generation data as a proxy for revenue suggests that approximately 40% of the sector's generation activity is Low-Carbon. Conversely, examining where the sector has invested capital over the past year suggests that approximately 90% has been directed to Low-Carbon. The difference between these Low-Carbon proportions can result in meaningful differences in calculated ESFR values.

Where no capex or asset data are available, we use a waterfall approach to determine the appropriate split between Low-Carbon and High-Carbon. Specifically, existing asset base, revenue or activity-specific proxies are used, if available; otherwise, the facility is treated conservatively and allocated 100% to High-Carbon. Information sources for these calculations include third-party data providers (e.g., FactSet, S&P Capital IQ, CDP) and company-reported data[36].

[36] Data inputs are typically matched with the period of the ratio's measurement; however, in some instances data availability may necessitate the use of slightly older data. For example, CDP data is typically reported on a one-year delayed basis, which means our ratio in some instances uses inputs from a previous year's CDP reporting period.

ESFR application to our Green objective

ESFR methodology application to our $1 trillion Green objective	In addition to the climate-related targets and metrics in Carbon Compass®, we aim to finance $1 trillion in Green activity by 2030 across our commercial and investment banking businesses[37]. This year, we updated the Green objective and broadened its eligibility criteria to include activities that support the expansion and development of low-carbon, affordable, secure and resilient energy systems in line with ESFR. New eligible activities include zero- and low-carbon power generation at diversified power companies, nuclear energy-related activities, electricity networks and grid modernization, as well as electric vehicle charging infrastructure that is captured in the ESFR Low-Carbon numerator. This update recognizes that a transition to an energy-secure, low-carbon economy requires financing across the energy system, from developing cleaner sources of energy to building and modernizing the infrastructure needed to connect and deliver energy reliably.

The case for a technology-enabling ESFR

As noted in the introduction to this Chapter, two of the guiding principles for our approach are for the ESFR to be investment-focused and insightful to internal and external stakeholders. We believe our methodology manages these priorities, particularly by focusing on external financing that is being used to build out future energy supply.

Our methodology, similar to those published by others to date, allocates all energy supply financing into the Low-Carbon or High-Carbon category. While this is a reasonable starting point, it does not recognize that each technology (or fuel) within the Low-Carbon and High-Carbon categories has different emissions impacts and financing needs. For this reason, we believe there is value in considering the concept of a technology-enabling ESFR, as an enhancement to the current framing of banks' ESFRs, in which the numerator and denominator are adjusted to account for these critical variations across different energy sources.

Such an approach would reflect that each technology has different capital needs relative to how the world is currently investing in it. For example, in the IEA NZE scenario, Low-Carbon technologies will require a higher rate of capital investment than incumbent technologies. There are also variations in the capital requirements for individual technologies. For example, according to the IEA NZE scenario, technologies like renewable power generation and electric grids require a more modest increase relative to the current pace of investment, while hydrogen and CCUS would need a much more significant increase.

Currently, the lack of available data is a major challenge in calculating a technology-enabling ESFR, but overcoming this may provide more real-world insights into the pace of capital formation across different sources of energy supply. We welcome feedback from different stakeholders on this topic.

[37] See Our approach to our Sustainable Development Target for more details.

Appendix

Comparison of boundaries used for ESFR, portfolio-level carbon intensity targets and Green objective eligibility criteria

Below is a summarized comparison of the boundaries we use to construct our ESFR, our carbon intensity targets, and our low- and zero-carbon energy systems eligibility criteria under our $1 trillion Green objective, part of our Sustainable Development Target. For additional details, refer to Chapter One for carbon intensity targets, Chapter Three for ESFR and Our approach to our Sustainable Development Target for the Green objective.

		ESFR	CARBON INTENSITY TARGETS	GREEN: LOW- AND ZERO-CARBON ENERGY SYSTEMS
ACTIVITY BOUNDARIES	**Low-Carbon energy supply**	Low- and zero-carbon power generation	Electric Power portfolio	Low- and zero-carbon power generation
		Electric networks	Not covered	Electric networks
		Energy storage	Not covered	Energy storage
		Low-carbon fuels	O&G Operational and Energy Mix portfolios	Low-carbon fuels
		CCUS	Energy Mix portfolio[38]	CCUS
	High-Carbon energy supply	Oil & Gas upstream	O&G Operational and Energy Mix portfolios	Not applicable
		Oil & Gas midstream	Not covered	Not applicable
		Oil & Gas refining	O&G Operational and Energy Mix portfolios	Not applicable
		Coal-, oil-, gas-fired power generation	Electric Power portfolio	Not applicable
		Coal mining	Restricted activity[39]	Not applicable
		Coal transportation	Not covered	Not applicable
FINANCING BOUNDARIES	**Lending products**	Committed lending facilities originated or refinanced during a calendar year	12-month monthly average committed financing	Committed lending facilities originated or refinanced during a calendar year
	Capital markets activity	100% attribution of our share of the transaction size for deals originated during the calendar year	100% attribution of our share of the transaction size of capital markets activity on a three-year rolling average basis	100% attribution of our share of the transaction size for deals originated during the calendar year
	Advisory services (M&A)	Not applicable	Not applicable	Full value of the transaction, unless it is qualified through our ESFR methodology[40]
	Tax-oriented investments	Committed tax-oriented investments and syndications, excluding recapture, during a calendar year	12-month monthly average outstanding balance and recapture activity; three-year rolling average for syndications	Committed tax-oriented investments and syndications, excluding recapture, during a calendar year
	General corporate purpose financing	Only include the investment % of the facility (based on investment % of overall capital spending)	100% of facility	100% of facility if it supports certain green objectives or a client whose business model or activities support those green objectives. For certain energy supply-related activities, only the investment % of the facility is included (based on investment % of overall capital spending)

38 Only CCUS activity by in-scope companies is currently captured. Does not include standalone CCUS companies at this time.

39 Coal mining is included among the Firm's restricted client activities and transactions, which the Firm independently determines to generally present higher nature and social risks. These are considered on a case-by-case basis in line with the Firm's risk appetite and commercial interest. For more information, refer to our most recent firmwide Sustainability Report, available in the 'Resources, reports and disclosures' section on this webpage.

40 In the case of a deal in which only part of the transaction qualifies per our Eligible Activities, only the qualified portion is counted. For example, for certain energy-supply-related transactions under the Green objective, we determine the qualifying portion using the same investment-focused and low-carbon allocation factors applied under the ESFR methodology.

Abbreviations

CAGR	compound annual growth rate
capex	capital expenditure
CCS	carbon capture and storage
CCUS	carbon capture, use and storage
CDP	Carbon Disclosure Project
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CY	calendar year
EAF	electric arc furnace
ESFR	Energy Supply Financing Ratio
ETP	Energy Technology Perspectives
EU	European Union
EV	electric vehicle
FTK	freight tonne kilometers
g	gram
g CO_2e / km	grams of carbon dioxide equivalent per kilometer
g CO_2e / MJ	grams of carbon dioxide equivalent per megajoule
g CO_2 / MJ	grams of carbon dioxide per megajoule
g CO_2 / RTK	grams of carbon dioxide per revenue tonne-kilometers
g CO_2 / t-nm	grams of carbon dioxide per metric ton nautical mile
GCCA	Global Cement and Concrete Association
GCP	general corporate purpose
GEM	Global Energy Monitor
GHG	greenhouse gas
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICE	internal combustion engines
IEA	International Energy Agency
IEA NZE	International Energy Agency's Net Zero by 2050 scenario
kg	kilogram
kg CO_2e / t cementitious product	kilograms of carbon dioxide equivalent per metric ton of cementitious product
kg CO_2 / MWh	kilograms of carbon dioxide per megawatt-hour
km	kilometer
LNG	liquid natural gas
M&A	merger and acquisition
MJ	megajoule
MPG	miles per gallon
Mt	megaton
MWh	megawatt-hour
N_2O	nitrous oxide
NAICS	North American Industry Classification System
NGO	nongovernmental organization
NHTSA	National Highway Traffic Safety Administration
O&G	Oil & Gas
OECD	Organization for Economic Co-operation and Development
PACE	Platform for Analyzing Carbon Emissions
PCAF	Partnership for Carbon Accounting Financials
PV	photovoltaic
RPK	revenue passenger-kilometer
RTK	revenue tonne-kilometer
S&P	Standard & Poor's
SAF	sustainable aviation fuel
SBTi	Science Based Target initiative
SCMs	supplementary cementitious materials
SDA	Sectoral Decarbonization Approach
SDS	Sustainable Development Scenario
SUV	sport-utility vehicle
t CO_2e / t aluminum	metric ton of carbon dioxide equivalent per metric ton of aluminum
t CO_2e / t crude steel	metric ton of carbon dioxide equivalent per metric ton of crude steel
TPI	Transition Pathway Initiative
TTW	tank-to-wheel / tank-to-wake
U.S.	United States
UoP	use-of-proceeds
WSA	World Steel Association
WTW	well-to-wheel / well-to-wake

Disclaimer

The information provided in this document reflects JPMorganChase's approach to carbon intensity targets, absolute financed and facilitated emissions and Energy Supply Financing Ratio (ESFR) as at the date of this document and is subject to change without notice. We do not undertake to update any of such information in this document. While this document describes events and information that may be insightful to stakeholders, such discussion does not necessarily equate to the level of financial materiality requiring disclosure under law, including U.S. federal securities law.

This document contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements relate to, among other things, our goals, targets, aspirations and objectives, and are based on the beliefs and expectations of management of JPMorganChase and its affiliates and subsidiaries worldwide (collectively, "JPMorganChase", "The Firm" "We", "Our" or "Us", as the context may require), speak only as of the date on which they were made, and are subject to significant risks and uncertainties, many of which are beyond JPMorganChase's control. Expected results or actions may differ from, and JPMorganChase makes no guarantee that it will meet or follow, the anticipated goals and targets set forth in the forward-looking statements.

Our ability to measure many of our goals and targets is dependent on data that, in some instances, is measured, tracked and provided by our clients, other stakeholders, and third-party data providers; our ability to measure progress toward our goals and targets is subject to the quality and availability of such data, as discussed in this document.

Factors that could cause JPMorgan Chase's actual results to differ materially from those described in the forward-looking statements include the necessity of technological advancements; data quality and availability; the evolution of consumer behavior and demand; the business decisions of our clients, who are responsive to their own stakeholders; the need for thoughtful public policies; the potential impact of legal and regulatory obligations and considerations; market conditions; climate science; commercial considerations; changes in or assumptions underlying third-party scenarios and benchmarks; and the challenge of balancing short-term targets with the need to facilitate an orderly and just transition and energy security. Additional factors can be found in JPMorganChase's Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K filed with the U.S. Securities and Exchange Commission. Those reports are available on JPMorganChase's website (https://jpmorganchaseco.gcs-web.com/financial-information/sec-filings) and on the Securities and Exchange Commission's website (www.sec.gov). JPMorganChase does not undertake to update any forward-looking statements.

This material (including any commentary, data, trends, observations or the like) has been prepared by certain personnel of JPMorganChase. It is not the product of any Research Department at JPMorganChase ("JPM Research") and has not been reviewed, endorsed or otherwise approved by JPM Research. This material is for general information only and is not intended to be comprehensive and does not constitute investment, legal or tax advice, and it is not intended as an offer or solicitation for the purchase or sale of any financial instrument or as an official confirmation of any transaction or a recommendation for any investment product or strategy. JPMorganChase's opinions and estimates constitute JPMorganChase's judgment and should be regarded as indicative, preliminary and for illustrative purposes only.

No reports, documents or websites that are cited or referred to in this document shall be deemed to form part of this document. Information contained in this material has been obtained from sources, including those publicly available, believed to be reliable, but no representation or warranty is made by JPMorganChase as to the quality, completeness, accuracy, fitness for a particular purpose or non-infringement of such information. Sources of third-party information referred to herein retain all rights with respect to such data, and use of such data by JPMorganChase herein shall not be deemed to grant a license to any third-party. In no event shall JPMorganChase be liable (whether in contract, tort, equity or otherwise) for any use by any party of, for any decision made or action taken by any party in reliance upon, or for any inaccuracies or errors in, or omissions from, the information contained herein, and such information may not be relied upon by you in evaluating the merits of participating in any transaction. All information, opinions, analyses and estimates contained herein are as of the date referenced and are subject to change without notice. JPMorganChase is not obligated to update any information contained herein or to inform you if any of this information should change in the future. All market statistics are based on announced or closed transactions. Numbers in various tables may not sum due to rounding. The information contained herein does not constitute a commitment, undertaking, offer or solicitation by any JPMorganChase entity to underwrite, subscribe for or place any securities or to extend or arrange credit or to provide any other products or services to any person or entity. This material does not and should not be deemed to constitute an advertisement or marketing of the Firm's products and/or services or an advertisement to the public. All products and services are subject to applicable laws, regulations, and applicable approvals and notifications. Not all products and services are available in all geographic areas or to all customers. In addition, eligibility for particular products and services is subject to satisfaction of applicable legal, tax, risk, credit and other due diligence, JPMorganChase's "know your customer," anti-money laundering, anti-terrorism and other policies and procedures. The use of any third-party trademarks or brand names is for informational purposes only and does not imply an endorsement by JPMorganChase or that such trademark owner has authorized JPMorganChase to promote its products or services.

RESTRICTED DISTRIBUTION: This material is distributed by the relevant JPMorganChase entities that possess the necessary licenses to distribute the material in the respective countries. This material and statements made herein are proprietary and confidential to JPMorganChase and are for your personal use only and are not intended to be legally binding. Any distribution, copy, reprints and/or forward to others is strictly prohibited.

https://www.jpmorgan.com/disclosures

© 2026 JPMorgan Chase & Co. All rights reserved.